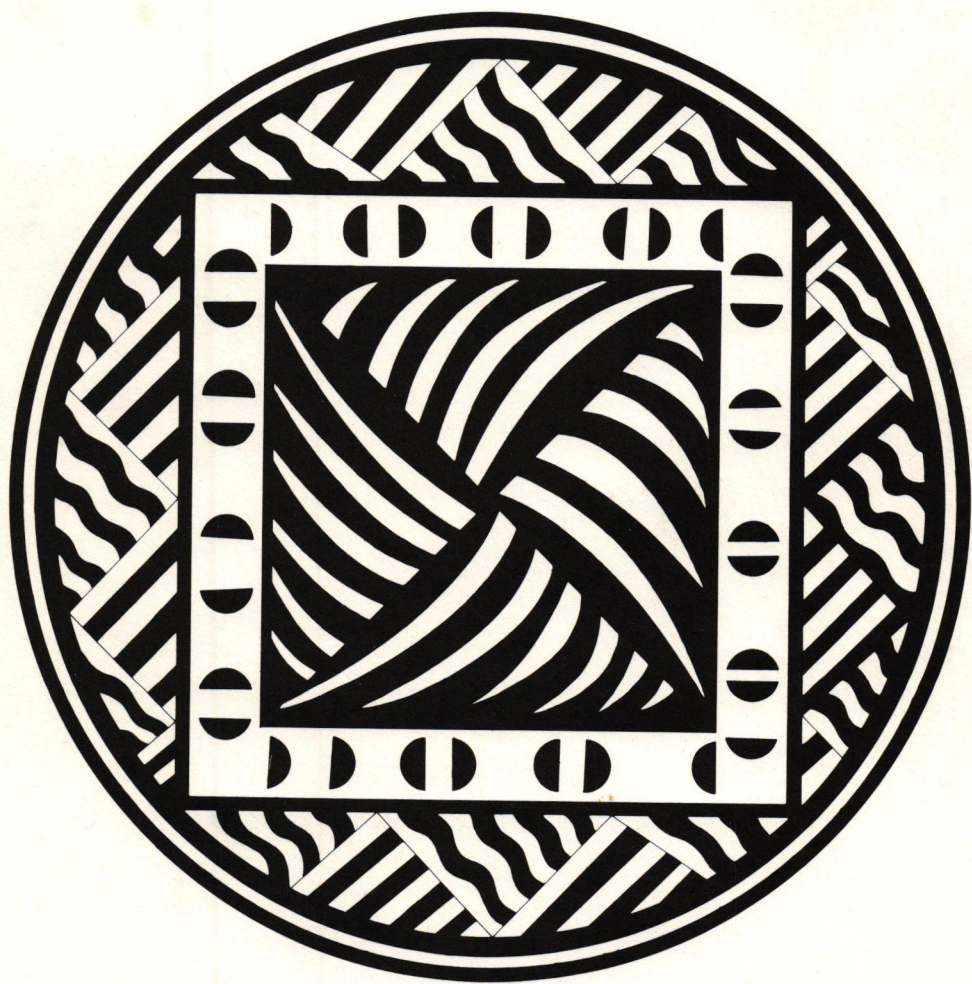


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CALIFORNIA





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Volume 16 Number 1 May 1994

Making Things

- 4 From the Editor
- 7 Rubbing Out the Craft:
Architecture and Fabrication in the Age of Information
CRAIG HODGETTS, AIA
- 12 Remaking Making
WILLIAM J. MITCHELL
- 16 People, Autos, Boats, and Buildings:
Craft and Integrity in Historic Preservation and Restoration
JOHN D. FEINBERG
- 22 Not Just Skin Deep: Terrazzo Floorscapes for the
Los Angeles Convention Center
ALEXIS SMITH
- 32 A Look at Making in the Meier-Getty Model Shop
MICHAEL GRUBER
- 42 What to Make
CHRISTINE KILLORY
- 46 On Urban Making and the Craft of City Design
JOHN KALISKI, AIA
- 55 Technique in a Poetic Act: The Making of Architecture
MARC ANGÉLIL
- 58 *When I look at the world, there are no boundaries...*
Coaxing Old Orthodoxies into Revealing New Complexities
ROBERT IRWIN

etcetera

- 64 Angels in the Architecture
MARVIN MALECHA, FAIA
- 70 Keeping History Whole: Converting the Presidio of San Francisco
NORA KLEBOW, AIA
- 72 Water Story
STEPHEN CALLIS
- 78 Letters

From the Editor: On Making

On what basis do we make things? We make things first in order to survive and bring meaning to existence. Then, making becomes a process of production of artifacts and environments that shapes lived experience and defines social structures.

For the nineteenth century architect Gottfried Semper, the form of artifacts was generated from the application and enhancement of the techniques, materials, and conditions—the coefficients—that determine the process of production. ‘Style’ was “the quintessence of those qualities of a work of art that come to the fore when the artist knows and observes the limitations imposed on a task by the particular character of all contributing coefficients and, at the same time, takes into account and gives artistic emphasis to everything that, within these limitations, these contributory coefficients offer....” Optimizing laws of necessity provided the basis for the art of making.

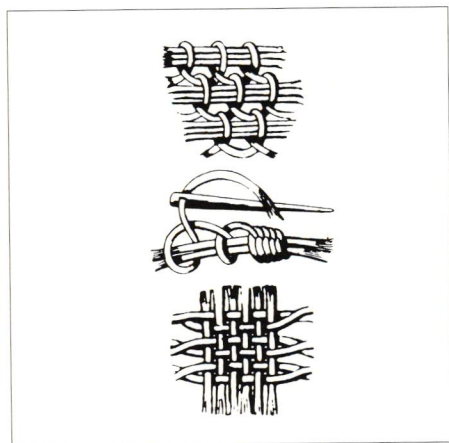
William Morris, believing labor to be the foundation of human conscious-

ness, asserted at the turn of the century that the unity of mind and hand in craft production brought meaning to life. Upholding the “solace of labor,” he fought the advance of technologies that could not be mastered by individual artist-craftsmen and the rationalization of production that he believed would make exploitation and alienation the dominant human experience. Meaningful work was necessary to civilization.

Walter Gropius in the 1920s embraced industrialized production and its capacity to produce for broad distribution and to cultivate a new common culture—unifying art and technology. Fearful of losing “the formative thread” that held together mental and manual processes in making, Gropius relied on the creative spirit of the artist linked to a collaborative process of design to imbue objects with meaning; they then were produced by means of the division of labor he simultaneously embraced and feared.

With the advent of imagineering technologies and the growth of the information industry, individual artifacts are widely reproduced in both image and material form, and meaning is carried by cultural systems of signification that obscure the techniques and materials of production. Experience is constructed by ‘hyper-real’ fictions and ‘virtually-manufactured’ truths. In a rapidly globalizing consumer economy and culture, the forces driving production threaten the survival of civil society, and the bases of making are again brought into question.

Following Semper’s theory, the new coefficients of production establish the limitations we are challenged to define and the potential our ‘style’ is mandated to enhance. In this context the authors



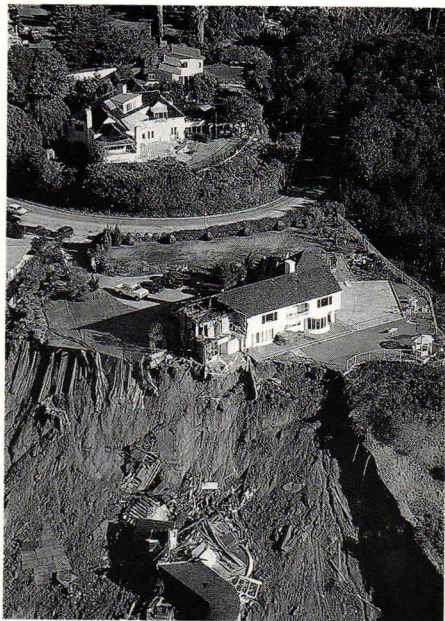
Study of principles used in the art of sewing and weaving, from *Der Stil*. Gottfried Semper, 1861.

featured here address contemporary issues in making, bringing to the fore present coefficients operating in the production of daily life experience. Questions about the relationship of mind to hand persist, and the search for understanding of current forces of production continues throughout the texts.

Hodgetts and Mitchell challenge us to rethink the terms of making within the global cyber-reality of the approaching millennium. Kaliski and Killory each take on specific problems and opportunities of late capitalist urban life. Feinberg and Gruber introduce us to state-of-the-art making in their respective fields: Feinberg illuminates the possibilities inherent in the 'new crafts' resulting from technology transfer. Gruber's meticulous documentation brings new meaning to the term 'study model'. Angelil's return to eighteenth century scientific thought reminds us of the place of imagination in technique.

Artists Smith and Irwin discuss their approaches to the artistic production of built environments. Their different perspectives on making and the meaning it engenders enhance our appreciation for the artist-architect collaboration. Of special note, Julius Shulman's photographs of Smith's terrazzo floors at the Los Angeles Convention Center capture the 'landmark value' the 'day' and 'night' maps bring to this public space.

Etcetera begins with an excerpt from Malecha's *Angels in the Architecture*. It reminds us that the power of our artistic vision extends beyond the representation of buildings. Klebow's vision, different in character, is equally grand—taking leadership on the future of the San Francisco Presidio. Photographer Callis returns to our recurrent theme of the relationship between nature and artifice with his photo critique of the flood control system known as the Los Angeles River. Nature's powers of 'un-making' continue to contest our grasp of laws of necessity.



Nature's forces of 'un-making' take their toll with the recent Los Angeles earthquake. Photo, Al Seib, *Los Angeles Times*.

With this first 1994 edition, *Architecture California* begins its fourth year of publication in the successful new format. Dedicated to providing a forum for the exchange of ideas among AIACC members, other architects, other disciplines, and the public on issues affecting architecture in California, the journal continues to seek reader input in the form of article submissions, letters, sketches, and photographs. Engage in a debate with an article you read. Confront a difficult topic. The Editorial Board, which reviews and selects articles for each edition, wants your ideas—in words and images.

1994 also marks the 50th anniversary of AIA California Council, and *Architecture California* will celebrate with a special edition in November, "California at a Crossroads: The Next Fifty Years." Join us this year in taking a hard look at where we stand and where we are going—making things.

Lian Hurst Mann, AIA

X. THE INFLUENCE OF BUILDING MATERIALS UPON ARCHITECTURE. DELIVERED BEFORE THE ART WORKERS' GUILD AT BARNARD'S INN HALL, LONDON. BY WILLIAM MORRIS January, 1892

I am afraid after all that, though the subject is a very important one, yet there are so many of you present who must know all about it, that you will find what I have to say is little better than commonplace. Still, you know there are occasions and times when commonplaces have to be so to say hammered home, and even those who profess the noble art of architecture want a certain sort of moral support in that line; they know perfectly well what they ought to do, but very often they find themselves in such an awkward position that they cannot do it, owing no doubt to the stupidity of their clients, who after all are not so stupid as they might be, one may think, since they employ them. Nevertheless, their clients generally are not educated persons on the subject of architecture.

Now the subject of Material is clearly the foundation of architecture, & perhaps one would not go very far wrong if one defined architecture as the art of building suitably with suitable material. There are certainly many other things which are considered architectural, & yet not nearly so intimately and essentially

a part of architecture, as a consideration of material. Also, it seems to me, there is one important thing to be considered with reference to material in architecture at the present time, when all people are seeking about for some sort of style. We know of course, and there is no use denying the fact, that we are in a period when style is a desideratum which everybody is seeking for, & which very few people find; and it seems to me that nothing is more likely to lead to a really living style than the consideration, first of all, as a *sine qua non*, of the suitable use of material. In fact, I do not see how we are to have anything but perpetual imitation, eclectic imitation of this, that, and the other style in the past, unless we begin with considering what material lies about us, & how we are to use it, and the way to build it up in such a form as will really put us in the position of being architects, alive and practising to-day, and not merely architects handing over to a builder and to builder's men all the difficulties of the profession, & only keeping for ourselves that part of it which can be learnt in a mechanical and rule-of-thumb way.

Rubbing Out The Craft: Architecture and Fabrication in the Age of Information

Craig Hodgetts, AIA

Someone jokes, "Pretty soon everyone with four eyes will have a pair of these!" Someone else responds, "And that will include everybody!"

I finger the bridge of the lightweight liquid crystal goggles and watch as 2-D becomes 3-D, then smile appreciatively as the raked image of an automobile fills my view and bursts into a multi-colored flurry of pistons, valves, and pure internal combustion.

My student is presenting a thesis—a virtual shopping mall with elaborate graphics and a premise designed to infuse those who equate architectural meaning with physical presence. Why, he asks, must we expend the enormous effort required to build a retail complex, park all those cars, replenish all that stock, heat and cool the space, guard it, maintain it, lease it, and market it—just to consummate the production cycle? Isn't there an easier way? Couldn't one simply design a virtual space for display and transactions, pump it out over the information highway, and let Barry Diller and his cronies handle the cash and shipping?

Indeed!

In the same way, we might ask about the priorities of making other 'stuff' in the age of information. Are we, as architects, to become the guardians of an arcane tradition, to define our role in the evolution of the new city solely in the realm of technical virtuosity? We may admire the beauty of an array of fasteners ceremoniously deployed across

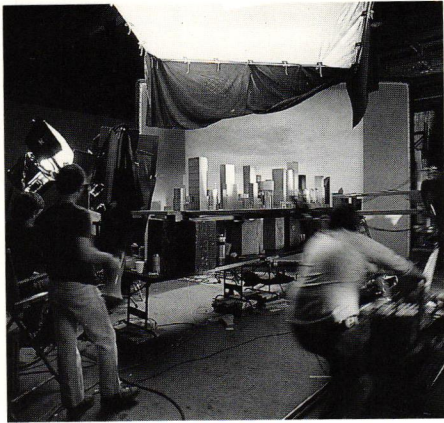
the face of a structure, but even the most obsessive among us can recognize the widening gulf between a vernacular which has become increasingly driven by expedience and the admirable joinery of an architecture that reflects our passion.

Certainly 'making things' well is both socially responsible and personally rewarding, but where is the line drawn?

A new fabric of visible social priorities has imposed a complex, often obstinate network of 'clients' on a professional system heretofore structured only to deliver well-crafted buildings for well-defined goals. The end user, who generally lacks both voice and motivation, has been traditionally excluded from participation. Certainly serious consideration of the wishes of those with little or no professional knowledge would have been unthinkable even a few decades ago.

Or would it?

Isn't it simply that the spectrum of desires and diversity of life-styles now impels each designer to seek out and articulate the centroid of need as carefully as one might have explored the natural terrain of a hillside in the 'halcyon days' of aristocratic patronage? What we as architects make is increasingly a range of decisions that aim to optimize highly defined constraints. Very often, in fact, we expend the lion's share of design effort on the 'solution' to the puzzling, mostly fractile outlines of a project's aspects, then skate through the 'technical' problems of specification



and construction. As for the ‘finishing’ work, the matters of surface and detail, it is increasingly difficult for us to attain any satisfaction without breaking the ever-shrinking cost-envelope. The craft turns out to be something no one can pay for.

What is potentially re-invigorating is that the means now exist to bring not only materials and fabrication but the purpose to which they are dedicated within the design process. In short, the potential exists for a redefinition of the craft of making architecture to include the craft of making experience itself.

In nineteenth-century England, cast iron revolutionized the production of machinery. It was rigid, easy to cast into a limitless array of shapes, and far more accurate than the wood and brass it replaced. Some engineers saw its value for erecting large enclosures, and proceeded to build greenhouses and exhibition halls. Most architects fixed only upon its implications for surface. We can almost hear them thinking: “What a great substitute for terracotta!”

Computers, simulations, and interactivity are tools that may speed the production and display of design products, but are far more significant as necessary complements to a dramatically expanded, and massively detailed architectural agenda. The greater the number of constituencies affected by an

architectural problem, the greater the demand that solutions be portrayed convincingly in advance. Garnering public, private, or institutional support, or gaining community-based approval is virtually impossible now without the most advanced tools of visualization. Stress on the informed opinion of Everyman demands more than a gauche rendering and a site plan: When the ‘message’ is made so palpable in venues like advertising, architecture is under the gun to comply. The architecture of feed-back, back-talk, and cross-talk has already been defined.

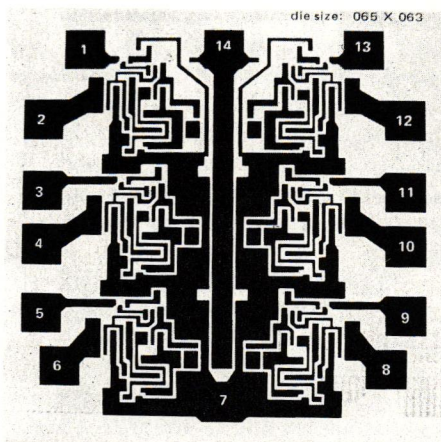
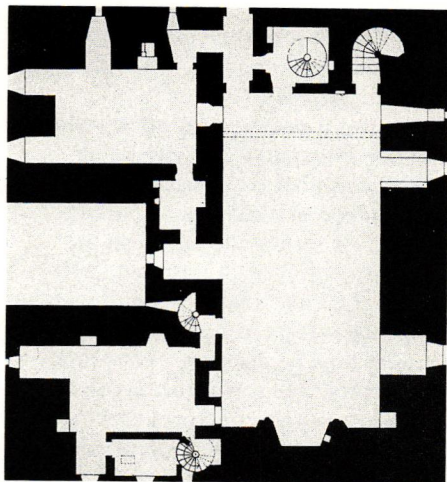
“Let your fingers do the walking” was more than a clever advertising jingle. It forecast what would become the deep structure of cities such as Los Angeles, in which information is processed, decisions are made, and transactions are consummated on the phone. And it puts into grim perspective the hierarchy of nano-seconds, digital gates, and fibre optics that overlay the traditional city of stone, metal, wood, and asphalt. Simultaneous cities such as this, governed on one hand by the speed of light, on the other by the squeal of brakes, are simultaneously infinitely expandable and multi-centered, acrobatic and ponderous, spontaneous and inertial.

What began as an application of craft-based knowledge to the enclosure

of space has in effect become a service profession on the fringe of a vast (cut-rate) construction industry. What architects do to redefine priorities now will determine whether hard-won skills will find applications above the line, where decisions are made, or below the line, where they are simply packaged.

Is it possible to pinpoint the moment of passage—that is, when the realm of architectural making re-calibrated its trajectory, and formed a new pact with concept over craft, gray matter over grout and mute blocks? Wasn't it 1928, when a young French architect better known for brash statements than adherence to the party line unveiled his latest salvo: a house, or rather, a precarious collection of planes and spindly legs he dubbed the Dom-ino, which embodied the essential elements of houseness yet brilliantly sidestepped the conventions of making anything at all? This thing seemed to imply—did imply—that it *didn't matter* what it was made of—that there was a deeper reality than that of the shingles and copings that were the subject matter for most architects. His disdain for—and indeed impatience with—the preoccupations of a craft-based architecture had finally found expression in the purely cerebral world of support and platform.

When he declared in *Towards a New Architecture* that "The architect is above all an engineer...profile and contour are a pure creation of the mind," it followed that the intellectually embarrassing (and irrefutably material) bricks



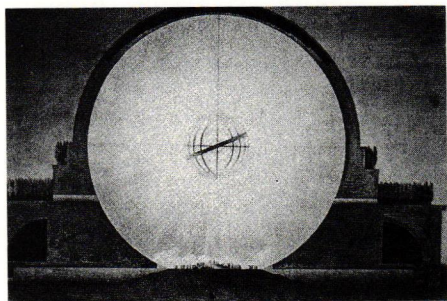
and concrete of the Villa Savoye had to be purged in a campaign to suppress any evidence of craft or its partner-in-crime 'honest labor'. It wasn't until the 1960s that such an absolutism found expression in the United States when a circle of so-called 'conceptual' artists including Sol Lewitt, Donald Judd, and Carl Andre stripped sculpture bare of figural imagery (even), and suggested that a box, a grid, or even pavement possessed the ingredients for artistic expression. Holding oneself at a palpable distance from the craft of making took on political/aesthetic meaning as the artist sought to appropriate generic form, invest it with cultural meaning,

scrub off the fingerprints, and walk away without a trace of dirt under (his) (her) fingernails.

It was a new role for artists who had been stigmatized as passionate Bohemians unable to distinguish between physical pleasures and artistic product. It turned the tables on the conventional, though unstated, celebration of the artist's labor ("Oh, I wonder how long it took to do that?" "Oh, I wonder how he did that?") in proposing that the true artistic act lay in the creation of intellectual property—and then in the fierce protection of one's property rights.

The game played to capacity houses in New York. Architects like Peter Eisenman, never far behind, seized the moment to launch ideas for a conceptually beautiful—if practically disadvantaged—series of projects, and, in some cases, fully realized propositions that startled by their brave disregard of worldly phenomena like snow and ice.

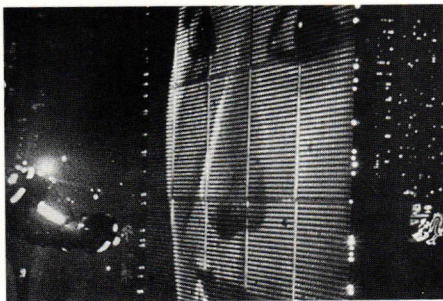
Whether by accident or design, Conceptual Art also drove a wedge into arguments for the nobility of labor itself, mostly of the Marxist variety, though both Abe Lincoln All-American Self Sufficiency and 1930s-Style American Ingenuity had supported similar theses. From now on, simple labor was a thing to be avoided at all costs, and the politics of guilding an upscale version, namely the craft-labor of a skilled artisan, gave way to street-fairs and the patronage of blue-haired old ladies.



Certainly we cannot dismiss the simultaneous efforts in Menlo Park and the Jet Propulsion Laboratory that gave us the 'wire frame' as a stand-in for the walls and floors of computer-generated designs, or the picaresque designers a few years later who created the frivolous surfaces identified with the Memphis Group. All of these adventures helped to articulate a single message: The manipulation of space and structure need no longer be dependent on an exclusive palette of materials, or even a physical manifestation for there to be 'architectural meaning'.

Architects, of course, have always inhabited the virtual environment of the imagination. Since the beginning, the three dimensions of even the most banal structure were first encoded in graffiti or on linen. The monumental drawings of Boulée and Mies and Kahn were 'immersive' in the modern sense—they only lacked the fitful illumination of the electron beam. Virtual reality, it would seem, is only the latest consummation of our perpetual longings for a poetics of space. It's not the final bell.

So it is no surprise that architects who inhabited the fashion curve have taken to supporting their practice by the sale of drawings—sketching enticements in a vellum surround rather than building them on hard rock—or striving to achieve professional dominance on the basis of graphic representations. Such images are easily absorbed, transmitted, and reproduced, and *mirabile dictu*, can be consumed and appreciated



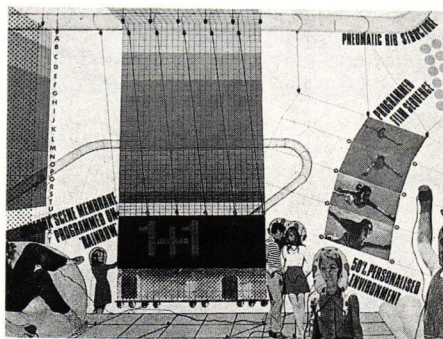
fully without the messy circumstances of excavation, waterproofing, and engineering.

After all, if a discerning visual appetite can be satisfied by a stew of microprocessors juggling the refraction index of a bunch of mathematically defined surfaces in order to ray-trace a perceived journey through time and space, can any of us (except perhaps Pevsner, Lynch, Rudolfsky et al.) be so peevisish as to maintain that it really matters? Is the ephemeral Information Superhighway a genuine replacement part for those heavy concrete ones that develop potholes, expansion cracks, and tawdry roadside attractions?

Architects, with the conviction that physical presence is an inevitable part of the equation of supply, demand, and transaction, have been slow to recognize the impact of communication technology on the environment, to identify the cluster of innovations that define a new agenda for the built environment, and especially to *react*.

But what if we begin to speculate on the potential of an architecture unbound by physical constraints? Computers linked to models linked to cutters linked to quarries linked to distribution nodes linked to erection mechanisms are proving that the extravagant curves of Gehry's design for Disney Hall are not only plausible, but rational and even affordable. Himmelb(l)au proposes building-size objects fabricated in the shipyard and delivered whole to a site on a barge. Is our mission to continue to elaborate the built world becoming more and more fractured in our effort to define the material aspects of a building's physical presence?

As these processes trickle through our technical culture, it becomes apparent that formal dexterity per se is an unlikely candidate for future celebrity. The very do-ability of new-age technology, from model-scan to final product, will inevitably draw it out of the experi-



mental studios of the avant-garde and deliver it whole to the purveyors of the basics. While superior art will doubtless retain its prestige and inherent value, 'me-toos' will have the means to produce less disciplined work with less effort than ever before and in ever-more slick formats. Alternatively, if the techniques of construction have been largely resolved by suppliers (and they have) then Buckminster Fuller's observation that the architect of the future would function as a catalogue buyer is already a fait accompli.

In either case, the history of architecture is in for a jolt.

Remaking Making

William J. Mitchell

Everyone knows, by now, that designers can use CAD systems much as writers use word processors—to get the work out as quickly and efficiently as possible. But what isn't so obvious is that digital technology can fundamentally change traditional relationships between the processes of designing, depicting, prototyping, fabricating, and assembling works of architecture—and in so doing can open up new modes of practice and new ranges of architectural possibilities for exploration. Consider the following scenes.

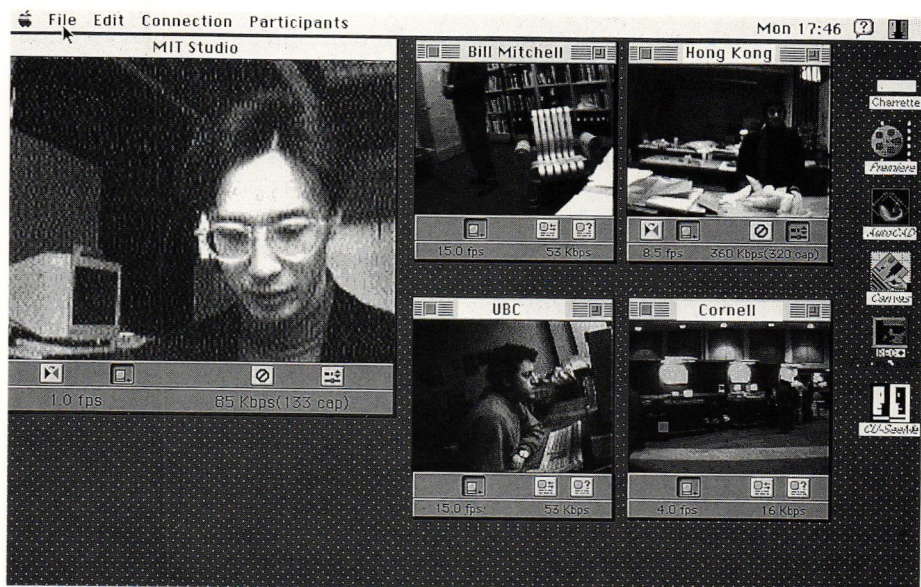
DESIGNING

Rewind to 1969: At that time I was a very young assistant professor at UCLA. Just down the hall from the computer center where I spent most of my time, some Bolt Beranek and Newman engineers installed a machine that booted up to become the very first node of Arpanet—the computer network that was destined to evolve into the worldwide Internet. From this utterly inconspicuous ground-zero point, digital electronic interconnectivity expanded explosively to blanket the globe. By December there were four Arpanet nodes. In April 1971 there were 23; in June 1974 there were 62; and in March 1977 there were 111. Soon, cyberspace was busting out all over; two more important networks, CSnet (funded by the U.S. National Science Foundation) and Bitnet (funded by IBM) began to develop in the early 1980s. A high-speed backbone (NSFnet) was in place by July 1988; this connected thirteen regional networks scattered across the United States—much as

the interstate highway system linked local road networks—and the whole loosely organized system became known as the Internet. During the late eighties and early nineties more and more networks connected to the Internet, and by 1993 it included nearly two million host computers in more than 130 countries. In the United States, by that point, there was one Internet host for every 250 people.

Fast forward to March 1994, where I am typing this text on a computer in my office at MIT: On the same screen, there is a video window open to the studio upstairs where my students are working, and there are additional windows to studios at other universities in St. Louis, Ithaca (New York), Vancouver, Hong Kong, and Barcelona. There is a small video camera on my desk, so that the students can also see me at work. We are all interconnected through the Internet, and the students in these different locations and time-zones are working together on a housing project for an area of Shanghai. Through electronic, digital channels, the students and their instructors can exchange CAD models and rendered images, get answers to queries about site and program, and engage in discussion and criticism. They are operating as a virtual design organization—one that is put together for a particular project and disbands at the end of it, that requires no common studio space, and is held together by high bandwidth digital telecommunications.

As access to high bandwidth computer networking becomes ubiquitous, and as the cost of computation contin-



ues to drop, electronically supported virtual design studios will become commonplace. They will effectively and inexpensively link architects, consultants, materials and components suppliers, construction contractors, and clients. Architecture schools will use them to keep visiting critics continually in touch with students through remote desk crits, and to assemble virtual juries with geographically scattered members. The fax machine, the rush to get a package ready for the last Fedex pickup, and the red-eye with a roll of drawings will become quaint relics of the past. Architects who know how to work in this mode will be able to compete internationally, and will be able—on a project-by-project basis—to put together alliances of specialized expertise from a worldwide cast of characters. Unique capabilities and agility in alliance formation, rather than having a complete range of services in-house, will become the key to success.

DEPICTING

The ETH, Zurich: I am seated in a new architectural simulation theater. In front

of me is a wide video projection screen which extends almost to the edges of my peripheral vision. A fast graphics processor converts a CAD model of an architectural project into a realtime, realistically shaded, walk-through animation. I wear a pair of spectacles with infrared-synchronized, liquid-crystal shutters; these allow me to see the simulated scene in vivid stereo. Stereo sound effects that adjust themselves to the acoustic properties of the spaces that we enter are synchronized with the visual display. I am immersed in electronically constructed architectural space.

A simulator laboratory in MIT's Laboratory for Computer Science: A graduate student helps me adjust a headmounted stereo display, hands me a pair of earphones, and places my hand in a force feedback device. I find myself immersed in a three-dimensional scene in which I can push objects around by moving my hand in the force feedback device. There is simulated physics; objects feel solid, seem to have mass and inertia, and are operated upon by gravity. And they clink and bang realistically as they bump into

each other. This is a multi-sensory virtual environment. As I take off the apparatus, the graduate student casually explains that slight maladjustments of the equipment can produce painfully disorienting experiences that cause susceptible subjects to “blow lunch.” I believe him.

Steve Benton’s holography group at MIT’s Media Laboratory: The walls are hung with large, color holograms that have been synthesized from CAD models. But even more impressively, in a darkened, laser-filled back room, there is a working prototype of holographic television. The image is small, but it’s realistic, and it moves.

Beyond the journalistic hype about virtual reality there is a substantial amount of serious research into spatial imaging and simulated environments. With ongoing growth in available computer power, memory, and network bandwidth, sophisticated simulation facilities will become increasingly widely available. Instead of carrying perspective renderings into conference rooms and pinning them up on the walls, designers will send CAD files through the network to conveniently situated simulation theaters.

PROTOTYPING

The three-dimensional printing laboratory in MIT’s Department of Mechanical Engineering: I watch as a complex, computer-controlled machine spreads successive layers of powder and deposits tiny droplets of liquid binder to create a ceramic mold for casting a metal part. This device is automatically translating a CAD model into a three-dimensional prototype in much the same way that a laser or inkjet printer translates a CAD model into a printed two-dimensional drawing; instead of depositing a single, thin layer of particles on a surface, it builds up a three-dimensional object from multiple superimposed layers.

By now, there are many competing fast prototyping technologies. Stereolithography systems—which use computer-controlled laser beams to solidify liquid plastic—were first demonstrated in 1987, and are now in fairly widespread practical use. Selective laser sintering systems use computer-controlled lasers to scan successive layers of heat-fusible powder. Another technique is to use a hot roller to laminate thin sheets of adhesive-coated material onto a stack of previously processed laminations. Fused deposition (FDM) modelers squirt semiliquid thermoplastic material from a nozzle head, and—like printers that can deposit different inks to make a color print—can produce objects made from multiple materials. Solid ground curing and photosolidification techniques use masks, photosensitive materials, and ultraviolet light. Computer-controlled multi-axis milling machines and laser cutters work by removing material rather than depositing it.

‘Hard copy’ is beginning to take on a new meaning. Just as laser printers have become indispensable as a way of quickly translating drawings from digital format onto paper, and as fax machines are used to transmit drawings to remote locations, so rapid prototyping devices open up the same possibilities for three-dimensional models. As the relevant technologies mature, fast prototyping devices will become less cumbersome and expensive and will be suitable for everyday use by designers. (I remember when laser printers were rare and expensive devices.) Imagine sending a model to a client or consultant not by packing it in a box, but by 3D fax.

FABRICATING AND ASSEMBLING

Frank Gehry’s office, Santa Monica: The design and construction process has evolved into one of first hand-building three-dimensional physical models to establish and explore design ideas, then

using three-dimensional digitizers and CAD systems to convert the physical models into digital models for more precise and detailed development, then using rapid prototyping to 'build back' physical models to check the design, and finally using computer-controlled fabrication (CAD/CAM) techniques to translate digital models into full-scale construction components. Not only is this efficient, it also allows the use of complex curved-surface geometries that would otherwise be impractical, and it facilitates quality control.

Numerically controlled machines and CAD/CAM techniques have been widely used in the manufacturing industry for a long time, but until very recently architects were not able to exploit their potential. Basically, they are analogous to rapid prototyping techniques on a larger scale and with a wider range of materials. NC cutting and milling machines—two-axis, three-axis, five-axis, and even nine-axis—can be used to remove material from sheets of metal and blocks of stone. Stretch forming, heat induction bending, and other techniques can be used to translate digitally-described curved lines and surfaces into large-scale material form. Automated deposition devices of various kinds can be used—like smaller 3D printers—to build up shapes from layers of materials. All of these techniques can be used to produce molds for casting. Since the digital model is used directly to control the fabrication device, traditional shop drawings are eliminated. And, of course, the digital information can be transmitted electronically, through the computer network, to wherever the required fabrication devices happen to be available.

Techniques of assembly modeling—as now used extensively in aircraft, automobile, and ship construction—allow buildings to be modeled digitally as three-dimensional assemblies of components. Then, on site, these assembly models can be used to provide more

precise and detailed assembly instructions than traditional construction drawings, to drive electronic surveying and positioning devices for precise placement of components, and to control construction robots of various kinds.

CONCLUSION: THE DESIGN STUDIO OF THE FUTURE

The traditional organization of design and construction has been structured by drafting techniques that go back to the Renaissance, by reproduction and communication technologies that mostly date from the early industrial era, and by fabrication and assembly techniques far less sophisticated than those used in other industries. But the alliance of inexpensive electronic computation, digital telecommunications, simulation and rapid prototyping technologies, and computer-controlled fabrication and assembly techniques transforms the whole picture. Until now, we have merely seen automation of aspects of architectural practice such as production drafting and perspective presentation; in the near future we can expect a complete restructuring. The design studio of the future will be electronically-based, geographically distributed, able to support agile formation of alliances as needed for particular design and construction projects, and closely integrated with computer-controlled fabrication and assembly capabilities.

People, Autos, Boats, and Buildings: Craft and Integrity in Historic Preservation and Restoration

John D. Feinberg

It's so tantalizing. Along comes a technology that promises to 'cure' a building problem associated with deterioration of historic materials with a low cost, low maintenance substitute. Often our tendency is to trust manufacturers and their product claims, especially for new construction. However, in building conservation and historic preservation, the trust is not implicit, and the philosophy of preservation changes our decision-making.

The overriding philosophy in preservation is similar to medicine. Part of the beginning of the Hippocratic oath sets a criterion "First, do no harm." With emerging technologies in historic preservation, it is easy to simply use the technology without considering the harm. The negative effect of the technology may take a long time to show up. Preservation and conservation are fields in which harm is measured not in hours, but in decades and centuries.

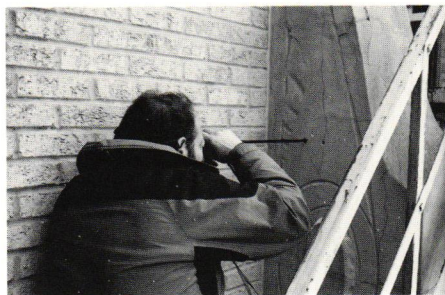
However, the building preservation and conservation fields are not alone in the clash between technology and preservation. In addition to buildings, we have seen this challenge in the restoration of boats, automobiles, and to some degree, in people, as we seek to preserve the ideal view of our physical beings.

A key aspect of historic preservation philosophy is integrity and the concept of integrity is all encompassing. A building is understood to be historic if it retains its originality, but it also has integrity if it remains within the context that gives it historic meaning. Integrity

also means retention of original form. Yet, a building may still have integrity if later additions were done with sensitivity and harmony, reflecting their own sense of time and place. And, finally, integrity relates to materials, and this is where most of the technological change has occurred.

PEOPLE

Advances in medical technology now allow us to preserve the human body in a usable condition, making this an interesting analogy to historic building preservation. Knees and hips are almost routinely replaced when the originals are worn out, not with bone and cartilage, but with contemporary materials. Organs from one body can be transplanted to another, and if successful, result in giving life to an otherwise dying body. How many parts can be changed before it is a different body? The essence of this dilemma is represented by heart transplants. Although the heart is no more than a mechanical part, we have viewed it from time im-





memorial as the repository of the soul, the essential being of the body—is the integrity of the original human altered by having someone else’s heart?

Plastic surgery is another variation on this dilemma. A body may be made to appear more youthful, or disfiguring damage repaired through plastic surgery, but at what point have the essential character-giving elements been so altered that integrity is lost?

AUTOMOBILES

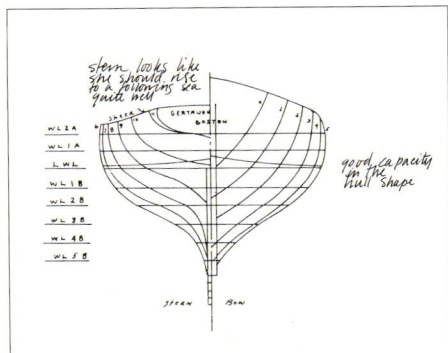
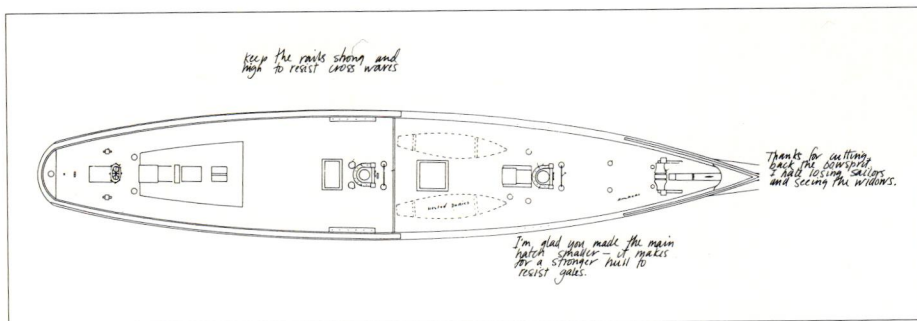
If there is one thing in this society that we seem to understand, it is automobiles. The value of a historic automobile is directly related to its integrity. In recent

years, this has led to some interesting arguments. We have seen convertibles made from hard tops in order to command a higher price in the marketplace. This *form* change is clearly unacceptable. Controversies have also arisen around details: badges, manufacturers’ plates, and other identification of the vehicle. Reproductions of many of these items are currently available in the marketplace, and a hot topic is whether these are in fact ‘replacement’ items, as we would consider a canvas convertible top (roof) or tires. While there are modern tires for virtually every model, tires in historic configurations are still made by contemporary manufacturers in order to preserve integrity, although they are certainly understood to be elements that are replaced as part of the normal use of the automobile. Even replacement elements require integrity.

With unlimited color choice now available, the appropriate *color* of historic automobiles is the subject of varied opinions. A classic historic automobile may be repainted in a color that was not original to that vehicle, but that may have been an original used by the automobile manufacturer. In the last several years, historic automobile restoration has begun to respect the richness of faded colors. The red original color of a 1932 Alfa Romeo has now aged to a dark wine color. Is painting an automobile to match this faded color right or better? Does it have more integrity?

BOATS

Perhaps there is no more clear example of technology creating major changes in an industry than in the field of boats. The *material* from which the vast majority of 19th-century boats were made was wood. For pleasure craft, this trend continued well into the middle of the 20th century, and only in the latter half of this century have materials radically



changed, with fiberglass coming to dominate the pleasure craft market. This change from wood to fiberglass was not always greeted with enthusiasm. However, two key forces have driven the change from wood to fiberglass as the dominant hull material for pleasure boats—lower construction cost, and lower cost of maintenance. These are the same driving forces in buildings.

It is ironic to see fiberglass boats carefully made to look like wood boats, including careful detailing of the grain pattern in the wood. Many can probably agree that this represents no integrity of materials, just a mockery.

The hull *form* of working and pleasure craft is derived from the boat's purpose, physical context, market, and style. The incredible development of the Gloucester fishing schooners during the 19th century and into the 20th century, was derived by a need to carry fish to market as fast as possible, the climatic conditions of wind and sea in the North

Atlantic corridor between Georges Banks and the Boston fish market, the need for speed because the first boat received the highest price, and the designer's sense of style. It was this latter sense of style that inspired long bowsprits during the 1800s. These bowsprits caused the death of hundreds of fishermen and were termed the 'widow makers'. These same factors generate form today in all facets of design of buildings, automobiles, and boats.

The concept of integrity of materials is illustrated by the evolution of technologies; today many new wood boats are made with epoxy saturated wood. Is wood still wood when it's been saturated with epoxy? Those in the preservation of wooden boat building understand this as a primary concern. Wood that has had its pores saturated with epoxy is a composite material. Is it wood, or is it plastic? Because the wood is the primary character giver, through its color and grain, we generally tend to accept the material as wood.

One of the problems of preservation of historic buildings is how much original material must remain for it still to be considered original? When is originality lost? The U.S.S. Constitution (Old Ironsides) is often used as an example of originality in the discussion of preservation of buildings. This vessel still retains its original form, although it may not retain much, if any, of its original material, especially after the current rebuilding. However, the maintenance of wooden ships requires replacement of



Stoppani Two-Part Marine Varnish System. The super high gloss, color retention, fast application, and highly durable properties have many potential applications. Photo, Onne van der Wal.

planking, ribs, and other parts of the boat structure as time takes its toll. Given enough time, all parts become maintenance items.

What if the ship is taken out of its context? What if Gloucester fishing schooners are no longer plying the New England fishing waters, but are now in the northwest? What if they are no longer used for their original purpose? Are these vessels now so out of context that they no longer have integrity? Or should there be different expectations of preservation of context for forms that were meant to travel, such as automobiles and boats, than for buildings that were meant to be rooted. This is also the adaptive reuse question of integrity.

BUILDINGS

One of the integrity issues related to context is that almost anything can be built anywhere, an exception to which might be an igloo in the Mohave. A

New England Saltbox is frequently found in southern climates, where the large south facing wall is an inappropriate climatic response. Form, abstracted from climatic context, often has no rationale.

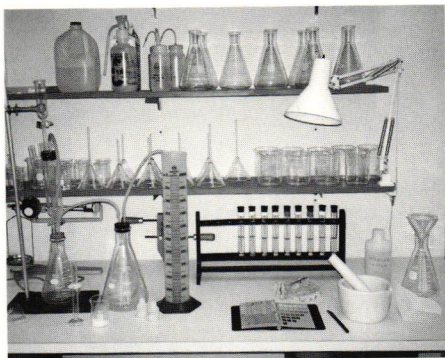
The integrity of this form can be preserved, but the overall integrity can be lost through replacement materials. Stud-frame structures, covered with latex-based thin stuccos over foam, may resemble a stuccoed adobe, but have lost all integrity of materials. The 'reader' of the building is being fooled.

The available technology of new materials to replicate old often inspires the designer to substitute materials for appearance, however, the same question of replacement materials exists in preservation of historic buildings. Overhanging stone cornices in seismic zone 3 pose a significant problem. Likewise, replacement of deteriorated stone with materials cast to look like the original although significantly lighter in weight, also challenges the concept of integrity.

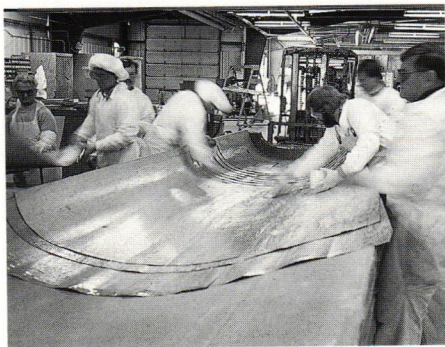
Both fiber-reinforced plaster and fiber-reinforced concrete have been used for these applications. Like a fiberglass boat, these elements also share in the benefits of lower initial cost and likely lower maintenance. Balancing the loss of integrity against improved public safety is important; however, cost is often viewed as more important, while in historic preservation the balance of integrity and cost is different than for other construction. Cost should be secondary. Integrity once lost is hard to regain.

One material has been used to replicate another for hundreds of years. Over time, these replicating materials have gained historic importance. For example, wood was often coated with paint containing sand to replicate stone. Stucco coatings have been used over rough masonry with the joints struck to create a finished cut stone appearance. How is this different from using wood-grain vinyl clapboard over original clapboards? Time may make the difference. At the turn of the century, it was common to use cast concrete blocks whose face appeared as a quarry-face stone to construct buildings. These buildings are not 'historic'. When new materials come into use, to gain acceptance they often replicate earlier materials to make the transition easier; however, many other materials have their own specific character. Concrete alone does not have innate visual quality and it must be brought out by exposing the aggregate, bush-hammering the surface, or other techniques. Exposed concrete occurred much later in the history of its use. However, not all materials may be capable of such evolution. Vinyl has no real quality creating character, yet it is still used to replicate other materials. It may never evolve its own innate character, it may not have one, or perhaps it hasn't been discovered yet.

Preservation has borrowed extensively from other technologies, such as



A portion of the historic materials laboratory at the Collaborative, inc., Boulder, Colorado.



Workers applying WEST SYSTEM® Brand epoxy to wood veneers for the construction of a modern wood/composite wind turbine blade in the Gougeon Brothers, Inc. plant.

the consolidation of stone and wood by infusion with epoxy to arrest deterioration. In the same way as for the wooden boat, the question arises whether the material is still original, as we have come to understand it. Certainly we can see the beautiful innate qualities of the grain in epoxy-consolidated wood, and the matrix in epoxy-consolidated stone. This may be the distinguishing aspect for the preservationist. Certainly the retention of original material is a priority in all historic preservation, and epoxy-consolidation allows the preservation of original materials and their innate character. Whether the materials are still original and still retain integrity after treatment is a question which should be constantly asked, but may never be completely answered.

Understanding which building materials are like the tires on a historic automobile, that are expected to need replacement, is also critical. Often our belief of what is expected to be retained for maximum historic integrity and what is expected to be replaced can be in conflict. We realize that wood roofing shingles will wear out after 20 to 40 years of age, and are therefore replaceable. However, the clapboards may take a much longer time and therefore are not so replaceable. We have developed a preservation philosophy that says that it is okay to replace the shingles but not the siding. The siding may be replaced over time, but the cycle is much longer. We are learning to change our idea of what is a replacement material as our historic buildings age and more needs replacement. This is the 'U.S.S. Constitution' question.

New materials are not necessarily a threat to historic integrity. This has been particularly true in the case of hidden materials, such as structural reinforcement of historic buildings, which can be done in a way that is visually non-intrusive, still retaining all the historic forms, including much of the historic material. This includes providing reinforcements within wood beams and connections. Where it is hidden, it's less controversial.

TECHNOLOGY TRANSFER

Technology in historic preservation has been borrowed from the medical, automobile repair, and boat building fields. These contributions are not only in materials technology, but also diagnostics. This is particularly true of the medical field. These very positive techniques include radiography, ultrasound, and fiber-optic borescopes, allowing otherwise hidden conditions to be made visible.

The automobile repair industry has contributed greatly in materials with the

technology of paints for preservation, particularly on metals. For example, recently the cast and wrought iron fencing around Harvard Yard in Cambridge was repainted using a paint technology similar to that first used by Ferrari in the early 1970s, using high-build primers and epoxy paints. Wood-painting techniques are derived largely from technology developed by the boat building industry to create high quality paint finishes for harsh environments. Boat building has also provided much of the technology for epoxies, particularly low-viscosity epoxy that can penetrate the pore structure of wood. This is also used in deteriorated stone technology.

CONCLUSION

It is critical for people in the preservation field to be ever vigilant in looking for emerging technologies from other fields as they aid the Building Conservator in building diagnostics and replacement of materials which allow for maximum retention of historic fabric and form. With these new technologies, there is a continuing responsibility to examine each in terms of its effect on integrity and to do no harm.

Not Just Skin Deep: Terrazzo Floorscapes for the Los Angeles Convention Center

Alexis Smith

Artist Alexis Smith talks about the Convention Center project on a walk-through with Craig Hodgetts, Lian Hurst Mann, and Denise Bratton.

Photographs by Julius Shulman.

THE SOUTH LOBBY: A WALKABOUT ON THE PACIFIC RIM...

As a way of approaching this floor for the first time, I recommend starting out on the ground level before going up onto the mezzanine where you can look down onto it. The best way to experience it is to try to see if you can figure out where you are from a point where you can't take it all in. Because once you know what it looks like from up above, your experience of it changes completely. From up above, you have the illusion of looking down onto land and water. I used one color of blue for deep water, and another for shallow water, and then the tan color for land. When you go up to the second level, all of a sudden the world snaps into focus. The two blues seem to merge and give an illusion of depth.

But the fact is, most people who come to the Convention Center won't know in advance that there is anything to look at besides what's on exhibit. The building is still pretty new and has not been widely publicized, so they probably won't even know there is a design on the floor. They'll just be

standing out here in the middle of the floor, and they might begin to notice that there are different colors, and then it might dawn on them that it looks like a map. But most people won't grasp it immediately.

The proportions of the map projection are so enormous that it takes a while—unless your sense of geography is really acute. But people who see the floor from above or approach it from the stairway or escalator on the east side recognize where they are right away, because they're immediately confronted with the familiar image of North America—they can see Florida, they can see Baja. The interesting thing is that because of the design on this floor, people who come here actually make some effort to orient themselves spatially, which isn't something they normally do in a building like this—except in an effort to figure out where they're going. *I'm a great believer in giving people things to do in public buildings.*

The South Lobby design isn't a map of the whole world. It's just the Pacific Rim. The rest of the world is only implied and tends to go off the map around the edges. Certain parts of Europe are just not here because they would fall right where there are elevators or stairways, or in the case of Africa, you have the Persian Gulf and Somalia, but the rest of Africa would be outside the doors. The fact that England and Africa are marginalized in my projection came about because I gave prior-



The South Lobby floorscape of the Pacific Rim radiates from the map's North Pole.

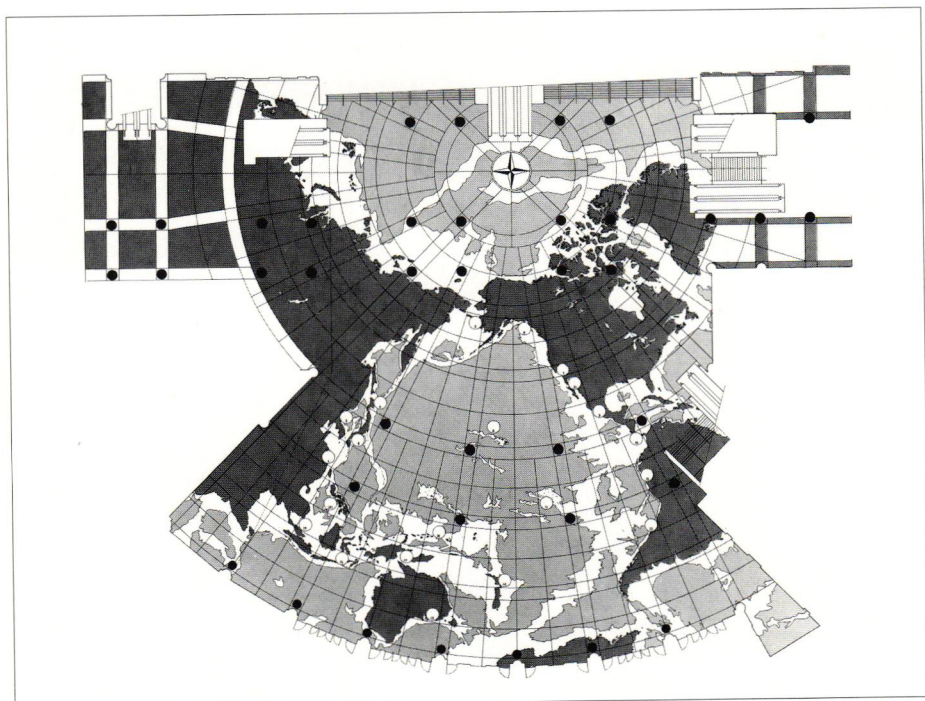
ity to the Pacific Rim. But also, I had to situate it so that the land masses that define it would miss the registration areas—which is a purely functional issue.

The concept for the map design was actually inspired by the intersection of the building's two geometries. The odd shape of the space comes from the intersection of an orthogonal grid and a radial grid. The radial lines on my original blueprints for the building suggested a longitude/latitude pattern to me—hence the map.

I had to consult a cartographer about the design before I even entered into the problems of terrazzo technology. When I decided to focus on the Pacific Rim, I started by looking at existing maps. But I immediately realized I had to eliminate 80 percent of the maps of the world because almost every one of them has the Atlantic Ocean at the center. And the other thing was that, as opposed to using a rectangular

piece of paper, or a globe, or whatever, I had to use a format that was shaped like this space, like the building. In that sense, it had to be totally made up because the building's geometry keeps fanning outward; the lines never come back together. I knew I wasn't bound to a standard projection, like Mercator's. The only alternative was to make one myself.

So this isn't one of the standard projections. It's a special one I worked out, which only fits the configuration of this lobby. There was no model or template. It's totally site-specific. The 'North Pole' is not the real North Pole. It's the metaphorical 'North Pole' of this space—where the grid lines intersect. But the map is accurate, in the sense that anything is ever 'accurate'. Because in fact, all maps are distorted. This one just happens to be distorted in the shape of this building as opposed to the idea of flattening the skin of a globe, or projecting the land and water



The orthogonal grid meets a radial grid in the divider strip plan of the South Lobby.

masses onto a rectangle, or something like that. The method I followed is really no different—no less accurate—than what cartographers do when they make maps. But we don't usually think about what they do when we look at maps. They fit the image of the land and water bodies to a rectangle of a certain size or onto a sphere—essentially, a surface. But the shape is only a convention. My map gives the impression of being right. And it is right. It's just not 'normal'.

In my search for relative accuracy, I also had to consult an anthropologist. As you can see, the map is punctuated by a series of black and white ethnic medallions. They're all indigenous to places on the Pacific Rim, and each one is based on an actual pattern or image generated by a particular culture. Some are whole designs; others are adapted from fragments of larger designs. But each one derives in one way or another from the common motifs of the wave,

or the spiral, or the wheel. I made the conscious choice that they should all be related to each other visually because I was struck by the commonality among motifs generated by different cultures. So I tried to look at the way human beings see the world in pattern. My idea was to emphasize images similar enough that they would imply relationships, but different enough that they would be culturally specific to the places where they originated.

The medallions evoke a strong sense of familiarity on some level. You can tell this by the way kids react to the floor. They really love it—especially the medallions. In fact, I think kids interact better with the floor in general than adults do. For one thing, once they get it, they start running all around trying to find things they know about, going from medallion to medallion in a way that adults might not let themselves.

But making the medallions was incredibly complicated. The designs

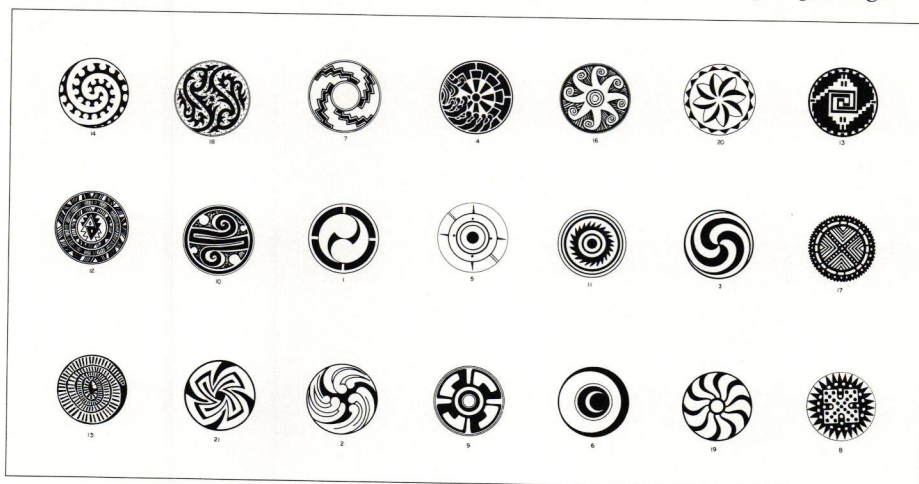
were so intricate that they had to have their own set of shop drawings. The metalwork in some of them was much more detailed than the map itself. It would have taken too much brainwork to do them on the spot. And it was filthy out there—the doors weren't hung, the floor was flooded from all that rain, all the other trades were working. It would have been impossible to work at that level of complexity under those conditions. So all the metalwork was done ahead of time by this very old craftsman in Florida, who seems to be the only person in the whole country who still knows how to do this kind of work. We had a lot of anxiety that something might happen to him before the medallions were done.

I had to 'site' each one of the medallions myself, because there's not really any up or down, or right or left in any of them. Nothing in the designs themselves tells you how they should be oriented. Basically I made a judgment call with each one about which way looked the best in context, and also with a general sense of 'when in doubt, orient it toward the Compass', orient people toward the center of the piece.

From the mezzanine level, you can really see how the lobby is based on the

circular geometry that radiates out from the Compass inscribed in the circle at the 'North Pole' of the building. The floor design is tied into the geometry like this, with double radial lines that move out from the center and intersect with the concentric rings to 'capture' all the columns. This grid of divider strips is the key to the whole piece. It is the place where the design of the map aligns with the geometry of the space—where the logic of the floor and the architecture come together. The grid provides a sort of faux longitude and latitude, but its real beauty comes from the fact that it's structural. Divider strips cover the expansion joints and a complex system of concrete pours that prevents cracking.

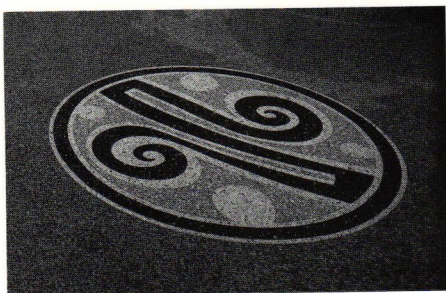
One thing you can't see is that the whole floor just made it through a major earthquake, with half of it on an on-grade slab and the other half on a suspended slab, and there's no cracking. So the system we used actually worked. Essentially, the whole sub-floor or slab was poured in key-shaped sections that correspond to the configurations of my design, so that movement and pressure would be relieved by the divider strips. That was the basic structural demand of the floor from the very beginning.



Black and white ethnic medallions mark cultures around the Pacific Rim inscribed in the South Lobby.

I had to work directly with the structural engineer to make the slab and the terrazzo design compatible.

As an artist used to working more or less alone, the number of people I had to get involved with was in itself a staggering thing. Aside from me, there were the two architectural firms, Pei Cobb Freed in New York and Gruen Associates in Los Angeles, plus the project management team, the people who manage the building, my assistant Christine Lawson, who is also an architect, the terrazzo contractor Roman Mosaic, the general contractor, and the inspectors. I have to say that as the whole project unfolded, I was stunned by the complexity of it. There's no comparison between this and making art in the studio. And the issue of collaboration is at the heart of the difference—the issue of knowing what is going on at all levels of the project so that you can protect your turf, but also



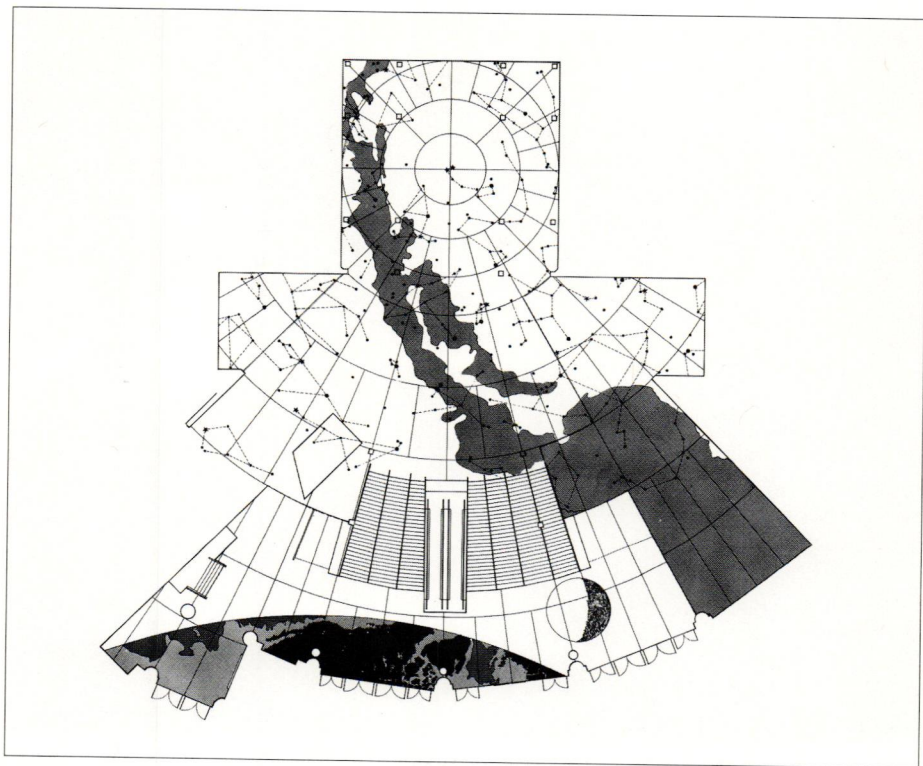
Each medallion required detailed metalwork and advanced terrazzo technique.

cooperating at all those levels and with every single person involved in the process. The sheer level of contact is amazing.

In retrospect, I think it's extraordinary that the architects were so supportive of my project, and when there were disputes, they defended me even at a certain cost to themselves. It's much more typical that artists and architects spend all their time trying to get in front of each other. But I remember



From the South Lobby concourse terrace, the view of the Pacific world snaps into focus.



A central-point radial-grid system guides the inscription of the Milky Way in the floor of the West Lobby.

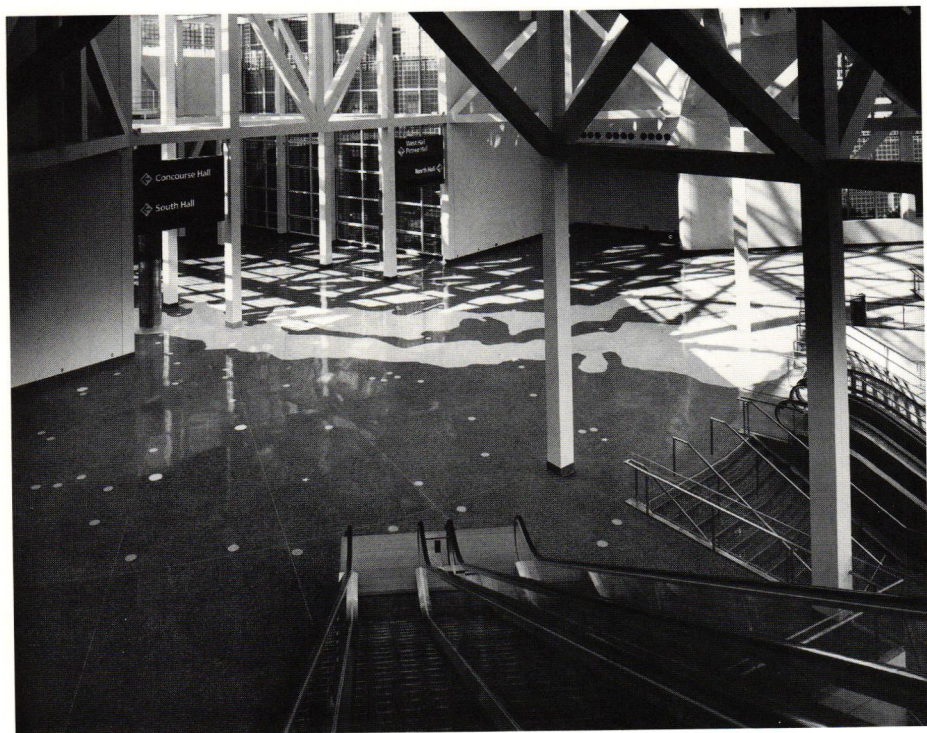
when I initially proposed the large map idea to Jim Freed, I was surprised when he actually said yes. I expected him to reject it because of its ambition, but he didn't. Instead, he encouraged me, and the South Lobby map eventually became the basis for the color scheme of the whole building.

Now I want to show you the West Lobby. To get from the South Lobby to the West Lobby, we have to walk across what's called the Meeting Room Bridge. When I decided on the map of the Pacific Rim for the South Lobby and a night-sky theme for the West Lobby, in my mind, I thought about one as the 'day lobby,' and the other as the 'night lobby'. Now that the building is finished, the symmetry of the night and day themes is played out in the way it looks from the outside. Those giant glazed elements look opaque in the daytime and transparent at night.

THE WEST LOBBY: TAKE A STAIRWAY TO THE STARS...

Coming into the West Lobby from the inside of the building, from the South Lobby, I like to start upstairs where you can really see the Milky Way. That central-point radial-grid system that you saw in the South Lobby is embedded in this design, too, but it's oriented by the North Star or Polaris from the Little Dipper. Even though you get a more panoramic view of both levels from up here, to understand the relationship between the projections and mapping of the two lobbies, it's best to go down and walk through it.

As I said before, the design starts with the basic idea of a radial projection, but here, the architectural space is shaped differently. It begins with a square space that links the fan-shaped lobby with the old building. Just like in



The concourse meets the West Lobby with a panoramic view of the Milky Way.

the other lobby, there is a central point from which concentric circles radiate outward—though here, the space where the center point is located is defined by walls. I fit a circle right inside the square—almost exactly. I put Polaris at the center of this tight square, and all the concentric circles and radials are projected outward from there.

The night skyscape projected from this point extends along the radials down a stairway to the ground level, where the Earth and Moon are seen as spherical bodies in the sky. When you come into the lobby from outside or from the underground parking lot, right away you see the edge of the Earth, a slice of the globe as if seen from someplace on another planet with western North America and the California coastline and a giant crescent Moon in the sky.

The constellations—which are all ‘made-up’ images anyway—are charted

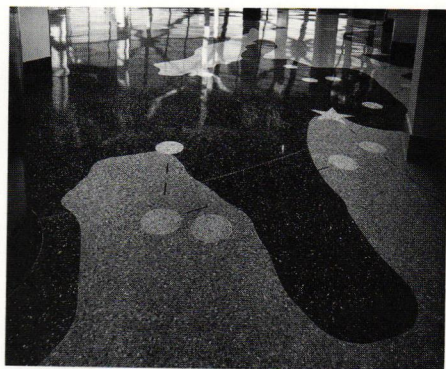
with the red dots that link the stars to each other. We can move through them across the sky on the upper level to Polaris, which is represented by a big zinc star. With the stars and constellations, I tried to be pretty accurate. The way it works is that stars are all coded by magnitude. The lesser-magnitude stars have the higher numbers, and the smaller the number, the higher the magnitude of brightness. Just one of those things that you don’t really pay any attention to until you start studying them or talking to astronomers—which is what I did. On the floor, the big white stars are the ones with the greatest magnitude; the medium-sized stars are represented by large white circles; and the small yellow circles are the smaller stars.

This yellow was actually a mistake—a mistake that I wouldn’t change after the fact even though there was fairly heavy pressure for me to do so. I originally wanted a yellow that had

some orange in it, some brightness to punch up the dark blue, but the color that everyone agreed on was the lightest of the samples. And then when the matrix for the yellow was made up, they obviously made a mistake and put too much pigment in it. At first, when they were pouring it, everyone complained that it was garish, that it looked like 'pumpkin'. It kind of 'jumped' out. Now, of course, it doesn't; it only perks up the floor.

I worked with Pei Cobb Freed on picking the terrazzo colors and writing the formulas for the mixes of glass chips and crushed marble. We went through many samples and mock-ups to get them right. On the ground floor of this lobby, the Earth carries over the three colors from the Pacific Rim, but the dominant color is the deep midnight blue of the sky. It was a very, very hard color to get. It has about 35 percent crushed mother-of-pearl in it, which makes it sparkle when the light shines on it—but also makes it more expensive than your typical terrazzo. With this one, we had to refine the procedures for polishing it too, because it turns out that it makes a difference whether you use gray marble dust or white marble dust. And there's so much glass in the floor that if you don't grind it to a certain level of polish, the tiny scratches that are left over make it look white instead of blue.

We found all these things out through trial and error. Most of the decisions we made had to do with the quality of the visual effects. But there were always trade-offs. A polished terrazzo floor has to meet a certain slip coefficient, and that also controls the level of polish you can give it. So there were always 'two edges to the sword', two kinds of problems to resolve at any given point. There were hundreds of different decisions like this that had to be made, and for each one there is a paper trail, a whole narrative history.



Stars sparkle in the terrazzo sky.

We should go down and look at the Moon, which is extraordinary for the level of craft it took to visualize the crater detail. It's done in gray and white terrazzo, and like everywhere else, all the metal divider strips are zinc—an incredibly pliable metal, but also a wonderful platinum color. The little zinc squiggles all over the crescent Moon are the shading of the cratered surface. This is certainly the most intricate terrazzo metalwork I've ever seen. I doubt if anybody ever bent divider strips this way before, with little tiny needle-nose pliers and thousands of twists and turns. The amount and kind of detail we were able to get into the large map was amazing, but the Moon is twice as detailed. The level of artistry that was demanded of the subs and their craftsmen was far beyond that of your typical terrazzo floor.

You know everybody complains that there aren't any craftsmen anymore, but I've actually had very good luck, both on the Snake Path at UCSD, which is slate and concrete, and on this job. In both cases, I worked with third or fourth generation family-owned companies which are now run by middle-aged guys who are bored with the predictability of business-as-usual. I found people who were ripe to do beautiful work—who wanted to take on a fancy, difficult project like this to prove what they could do. These guys have



The Earth and Moon on the ground level appear as spherical bodies in the 'night lobby' sky.

consciously preserved the skills and knowledge that are needed, but don't usually get to exercise them.

When you work with these people, they take pride in pushing the limits of the craft to achieve something that falls outside the boundaries of the typical, so

the scope of the collaboration gets extended. This isn't to say that we didn't have difficulties, and that there wasn't a lot of friction about whether it was just a floor or whether it was an artwork. There isn't anyone on this project who didn't have to deal with that issue in one

way or another. But in the end, I could never have done this without Roman Mosaic and Tile Company or without my assistant Christine, who worked for them and laid out the floor.

As an artist, you are automatically assumed to have an interest in craft issues, in the making of a thing, and even if it's not totally acknowledged, you have a certain mobility in the hierarchy that even an architect might not have. Because I'm an artist, I'm allowed to have a maverick style, to talk to absolutely everyone on the job, and to circumvent the hierarchy. People will accept that and my being relentless about details because they expect it from an artist. An architect couldn't have gotten this piece made because the difference between architecture and art in a situation like this is cachet. There is no question but that this floor is 'ornamental', and people don't usually spend this kind of money on 'ornamenting' an architectural surface. And if they do, they don't do it to this level of extravagance. In this sense, the artist and architect collaboration really works because the artist lends authority to a higher level of craftsmanship, and thus cost.

Relative to the cost of the whole building, the floor wasn't that expensive, but it carries a pretty big load of 'landmark value'. In terms of the memorable parts of the building, the things that are carrying that load are the 'curtain wall' and this floor. Those were the two things that the architects were willing to walk on hot coals for. Just those two things. That's what they were willing to sacrifice for.

On issues of sacrifice, artists and architects stand apart from other kinds of consultants because they think about having their names on things rather differently than other people do. At one point I was actually threatening to spend the balance of my fee to have the floor repolished because the roof had leaked on it during construction, and

nobody wanted to take responsibility for it. I figured that I'd spent more than five years of my life doing this, and in the end, what mattered to me was how good it was. It would have been easier for me to make another object and sell it, and use the money to make the floor right, than it would have been for me to live with that imperfection. I had that much invested in it.

The sheer fact that the floor is finished now, and that it has such megapermanence that no matter how much anyone thrashes it, theoretically it can always be repolished and brought back to the way it was intended to be, that's more important, ultimately, than anything else. It's one thing to design and build it into the architectural design in such a way that it's absolutely integral, actually part of the building, able to hold up to the onslaught of time and judgment; but trying to control what happens in a public space is far beyond what an artist can do. I was pushed to my limits just to make it happen.

What's important is that after each event that takes place here, everything goes—the plants go, the banners go, the furniture goes, everything goes. But my floor remains.

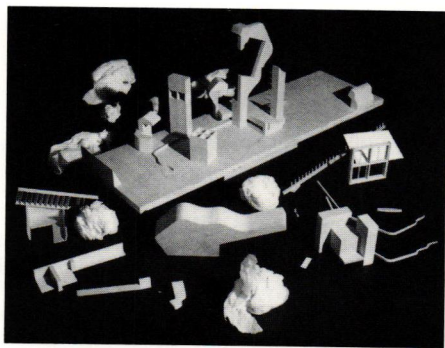
The work of Alexis Smith is thoroughly engaged by Richard Armstrong's monograph Alexis Smith (New York: Whitney Museum of American Art and Rizzoli, 1991.)

A Look at Making in the Meier-Getty Model Shop

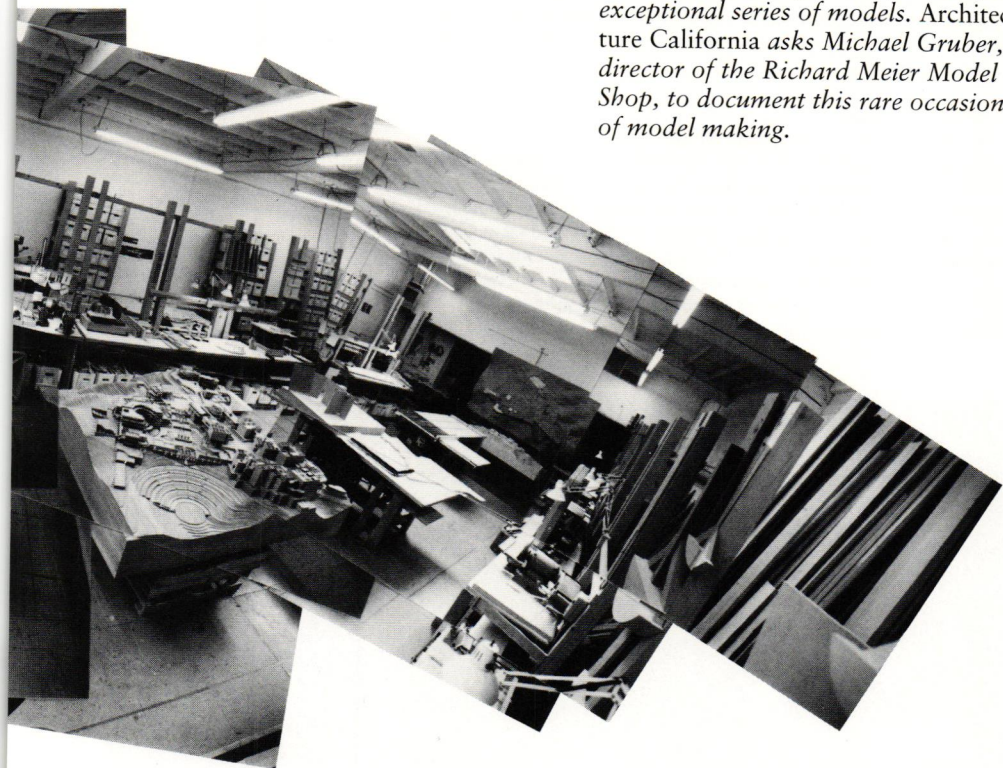
Michael Gruber



View of Model Shop, with 1/4" model construction, Fall 1993. Insert, collage of recycled model parts.



The extraordinary effort to build the new Getty Center complex in Los Angeles, designed by architect Richard Meier, FAIA, has been accompanied by the complementary development of an exceptional series of models. Architecture California asks Michael Gruber, director of the Richard Meier Model Shop, to document this rare occasion of model making.



PROJECT MODELS

1987

1/32" Site Study 5 Early Schematic Model

- Site/building relationship; massing forms on a 'carvable' colored plaster site

1988

1/16" Site Study 6 Final Schematic Model

- Thoughts of thoroughness; model framework same as project grid lines (photos below)
- Metal etched parts used for details: windows, skylights, railings
- Fabrication of grid patterns on wood for floor definition; accurate stairs
- Buildings are made as hollow interiors; exterior spaces show proportions with buildings; wood shapes and joinery more carefully made not to conflict with scale and detail

1989-1991

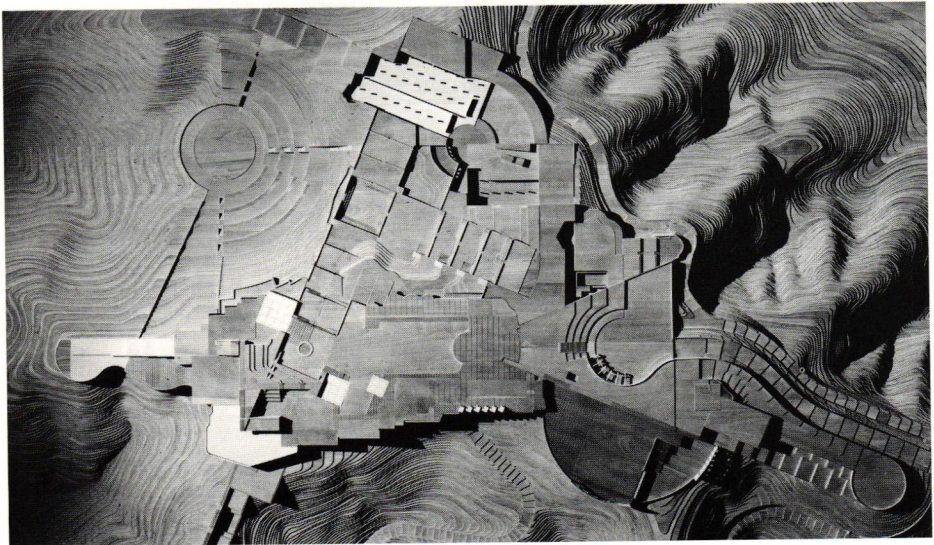
1/8" Wood Design Development Model

- Fabrication of parts refined; molds made and used to make intricate wood stairs, windows, skylights
- Parts/buildings made first for investigation; site and canyon added later (many parts/shapes looked at)
- Trees required; development of wood veneer trees with similar patterns (offshoot becomes 'Mr. Tree')
- Tree plotter invented to layout over 1000 trees on grid over contour site
- Sun angle machine/helioscope fabricated to test building shapes, heights, and building details (louvers, sunscreen, etc.) Used especially on the Center for Arts and Humanities building inner circular courtyard

1991-1993

1/4" Wood Construction Document Model

- Techniques are streamlined; 'Model Standards' book made for consistency
- Model used to coordinate and finalize Construction Documents
- Early models designed and built as 'partial' model, like an axonometric drawing (exploded): built to look at entry, circulation, structure (not just bird's eye view of buildings)
- Building models made with vertical 'cut throughs' for realization of basement to roof spaces/rooms; quick understanding of building (complex programs and designs)
- Circle arcs made to swing curved wood pieces as required
- Entire model designed for humans to walk into unbuilt areas for vistas



Frontside, 1/16" wood model (without buildings). Photo, Jock Pottle/Esto.

INTERWOVEN MODELS

1987-1993

Particle Board Models (1/4", 3/8", 1/2", 1")

- Volumes/spaces discussed in conjunction with other smaller scale project models
- Ability to look at a space, usually interior
- Areas done that were only needed for description; some spaces treated with paint, windows, etc.
- Not always 'pretty' models

1990

3" Scale Gallery Lighting Study Models

- Large scale models done simultaneous to small scale models to better understand space and system
- Executed for scientific investigation first, then aesthetic consideration
- Given that $X + Y = Z$ and knowing what Z wants to be, estimate what X and Y could be, then get close to Z and fine tune (sunlight control)

1989-1993

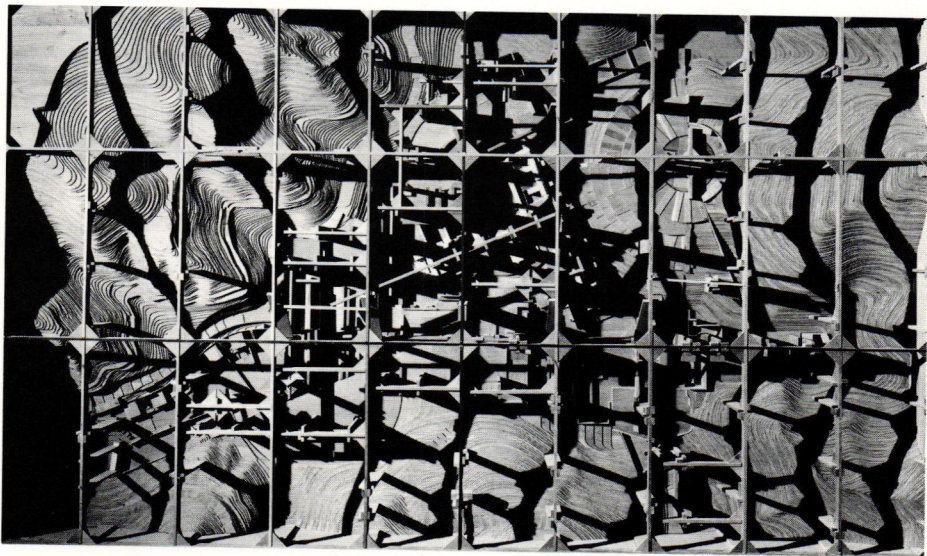
1/16" Quick Realization Models

- Whole upper project site abstracted with only concerned area depicted (entry plaza and central garden investigated in this model); 'eggcrate' site with only some wood contours made as required
- Model built at time of 1/4" construction document model to look at revised concepts/schemes for gardens, stairs, terraces, plazas
- Early studies for building facades grouped around entry plaza

1987-1993

Various Task Models

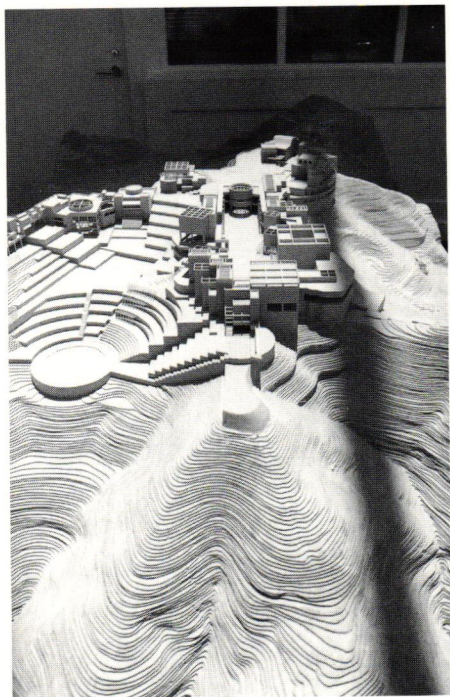
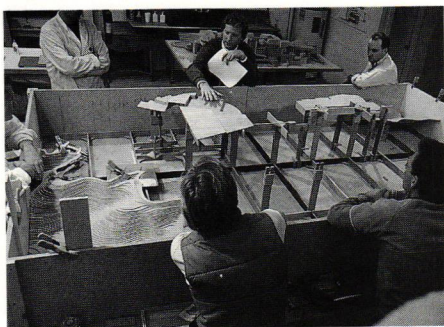
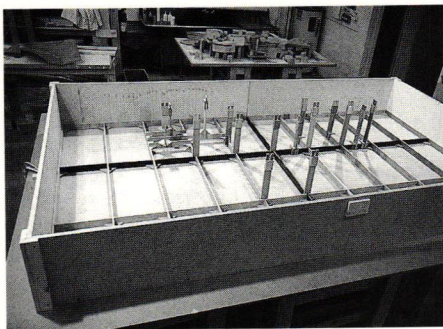
- Many studies of large and small particulars, from new building massing to louver details



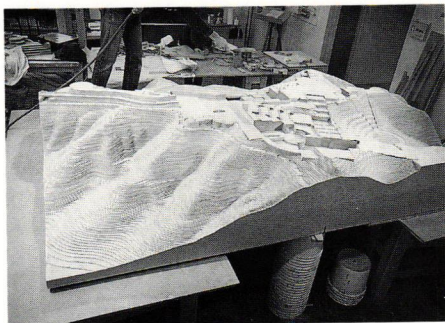
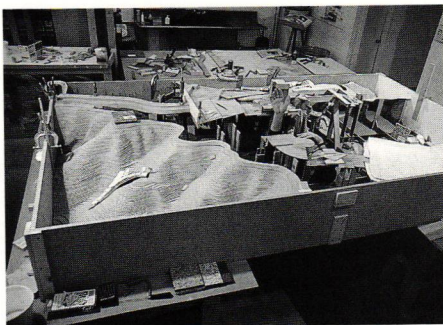
Underside, 1/16" wood model (model structure). Photo, Jock Pottle/Esto.



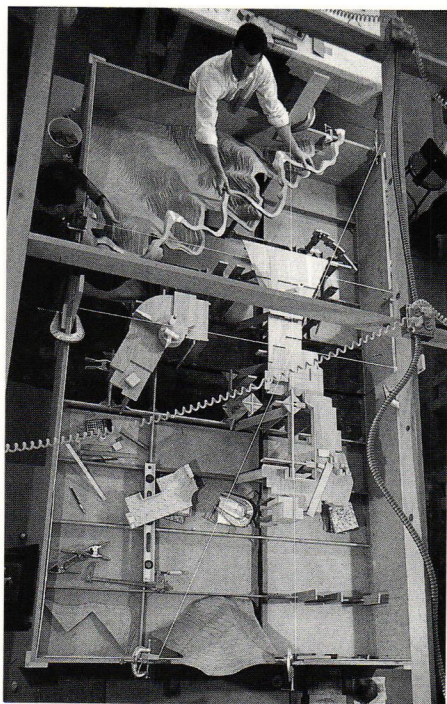
Upside down 'positive' of 1/32" plaster model.



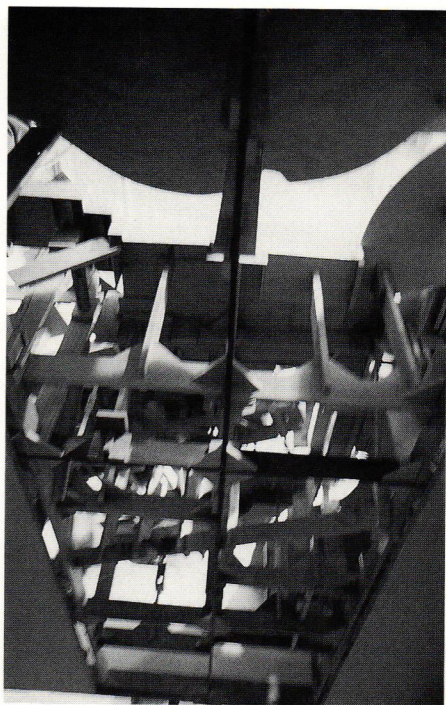
1/32" plaster schematic model, view from South.



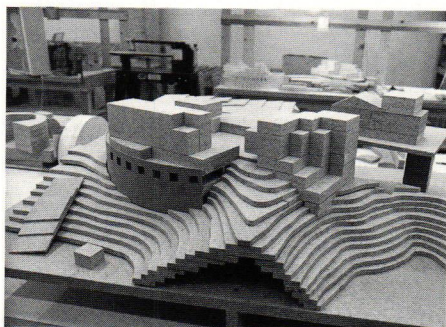
Sequence of 1/16" model under construction.



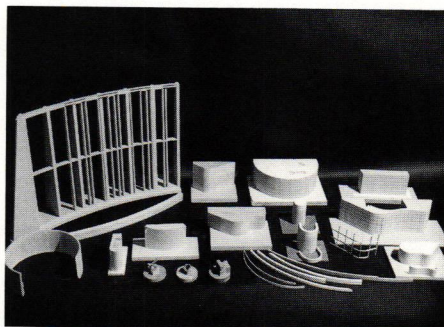
Overhead view of 1/16" model, laying contours.



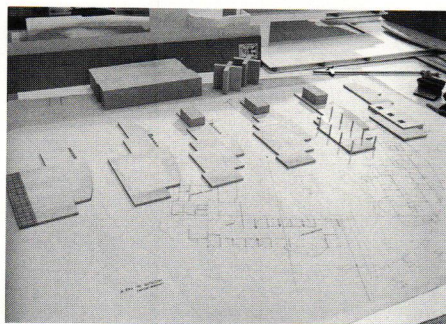
'Worm's eye' view of model frame structure.



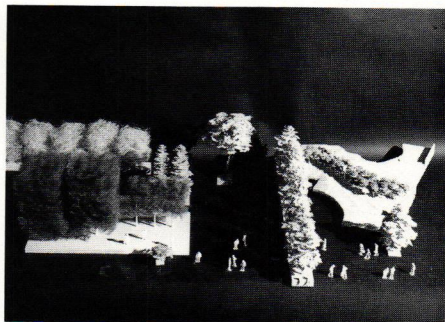
Early 1/16" particle board study model.



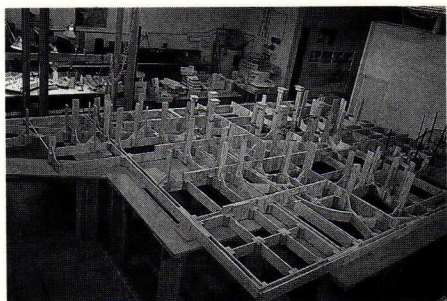
'Shape' jigs for stairs and windows, all models.



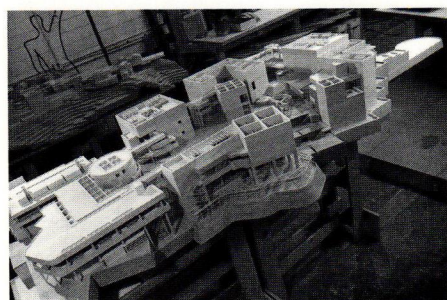
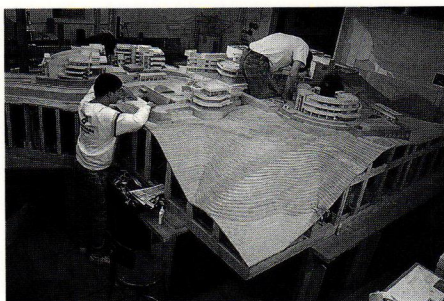
Laying out early model parts.



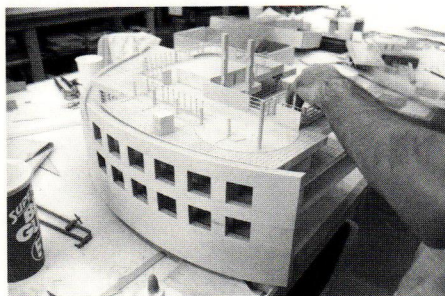
Tree and people prototypes for all models.



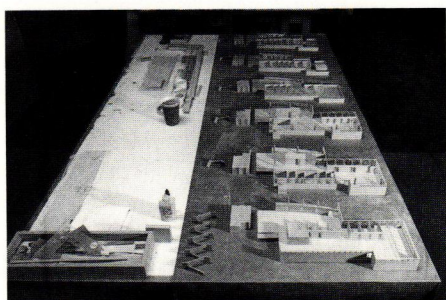
1/8" wood Design Development model under construction.



1/8" model of Museum building group.



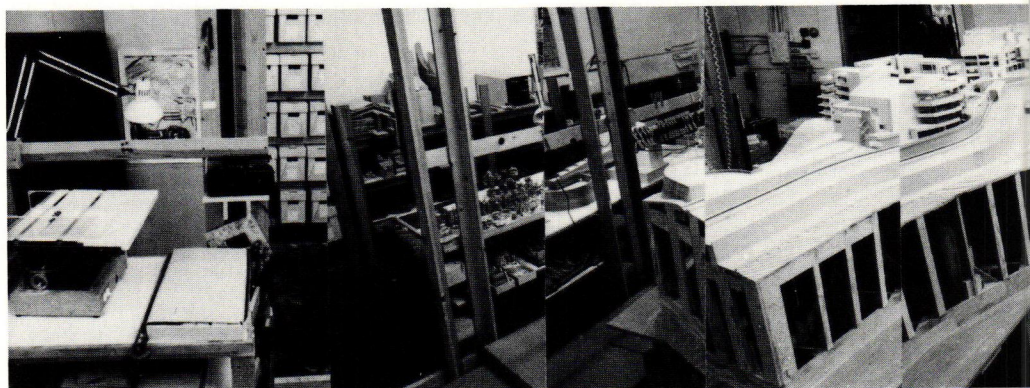
1/8" Getty Conservation Institute model.



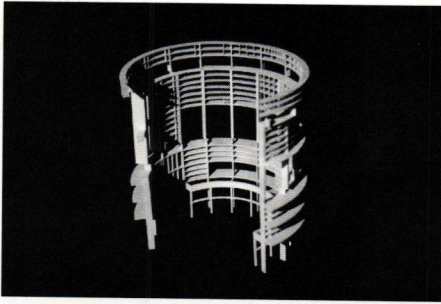
Layout of 1/8" model parts.



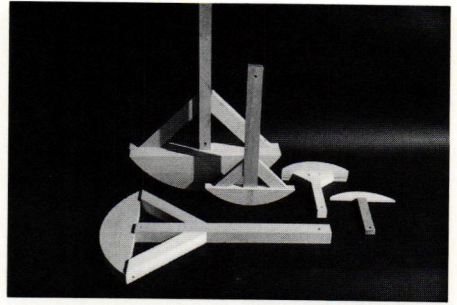
Review of 1/8" model.



View of Model Studio with 1/8" model under construction, Fall 1990.



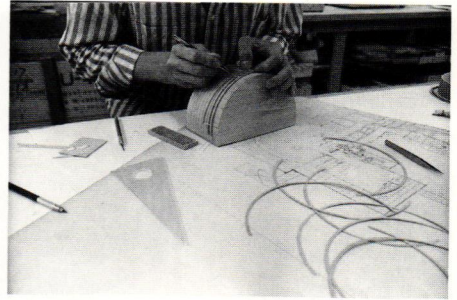
1/8" study of freestanding sunshade.



Wood arcs from which to cut circular shapes.



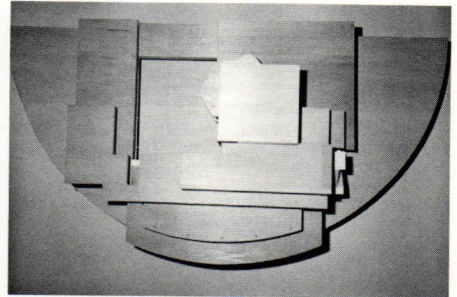
Making wood land forms.



Making curved windows on a mold.

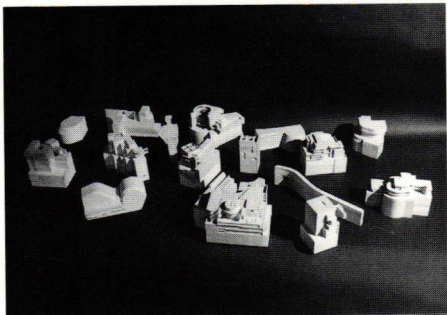
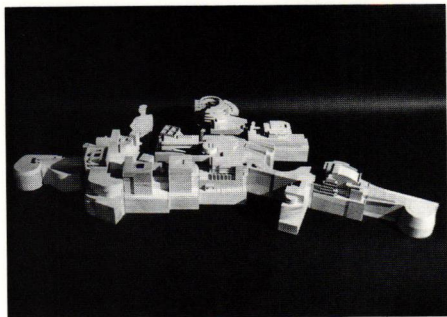


Laying out wood contours.

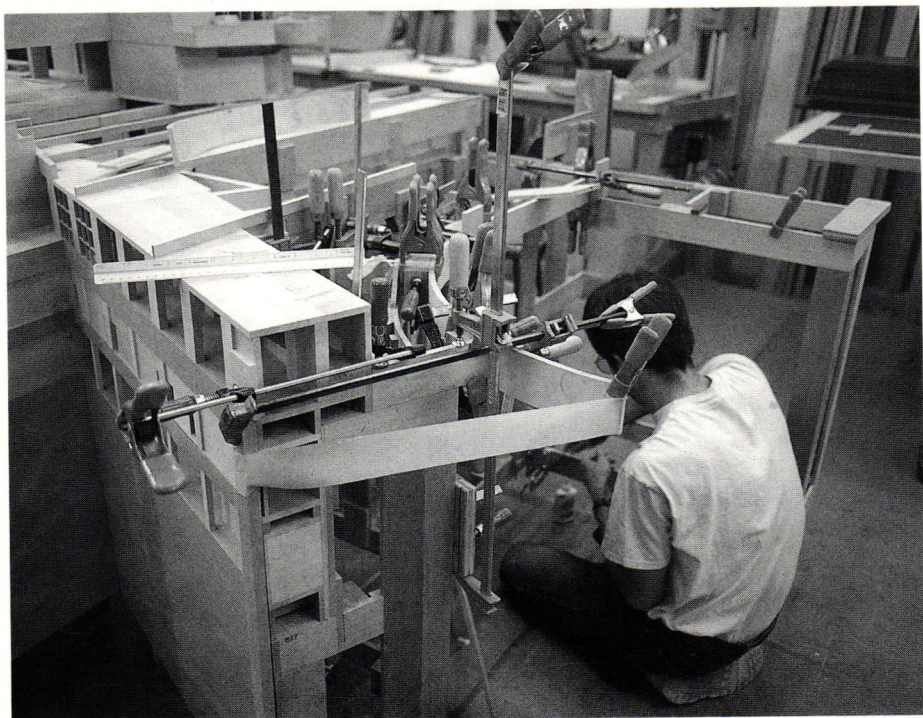


1/16" study, Getty Conservation Institute 'massing'.

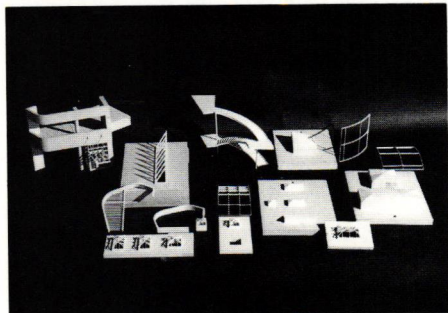




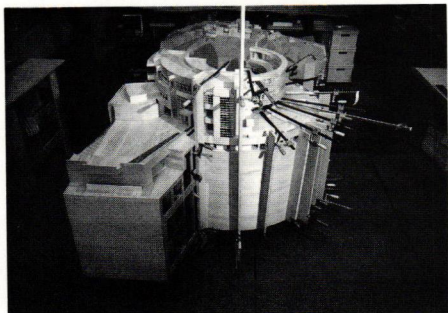
Small scale 'break-apart' study model as mock-up for large 1/4" 'walk-in' model.



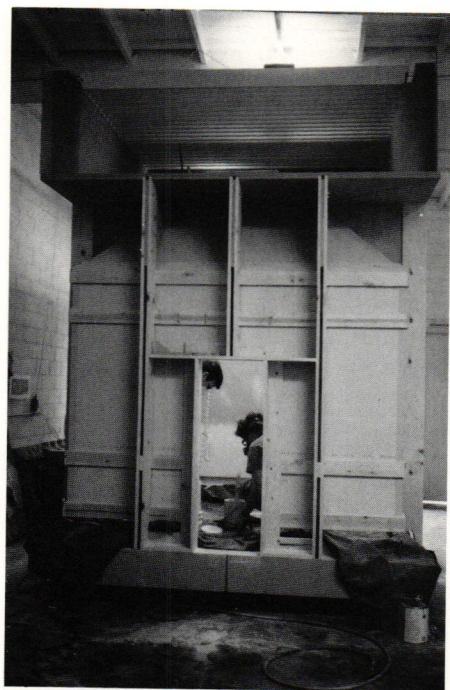
Clamping 1/4" Lobby model.



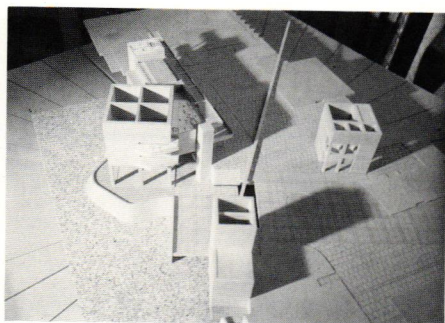
1/4" window and skylight parts.



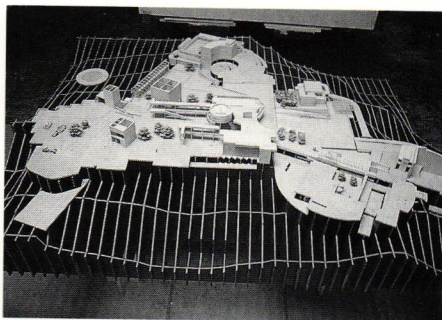
1/4" Getty Center model under construction.



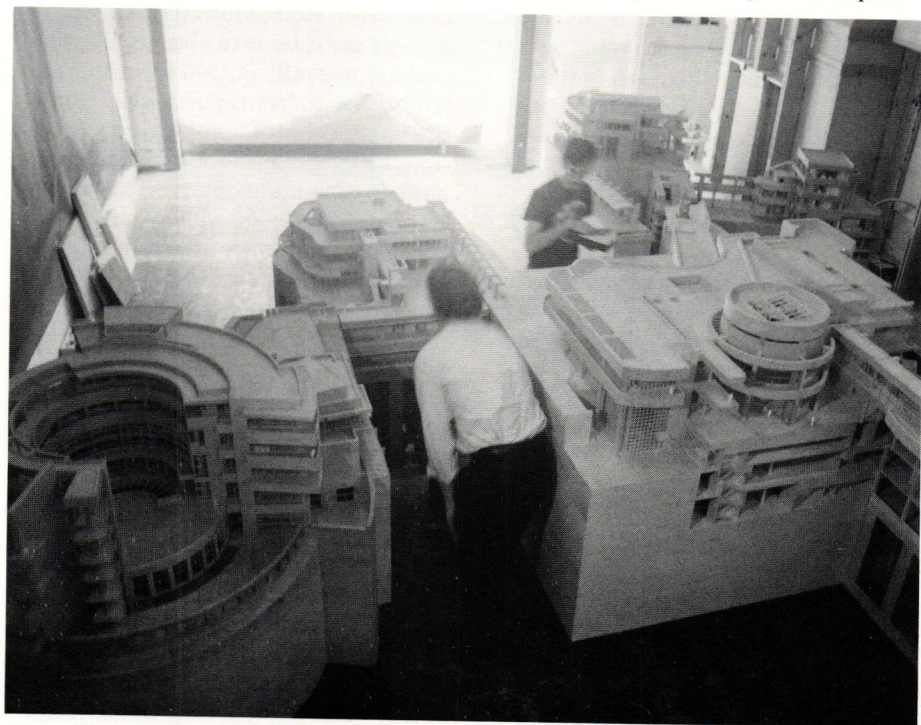
3" scale Gallery light study model, louvers at top.



Sun angle studies.



1/16" quick study model for 'garden concepts'.



1/4" model: left, Getty Center for History of Arts and Humanities; right, Museum Lobby.

What to Make

Christine Killory, RIBA, Assoc. AIA

Despite an outpouring of public support and considerable expenditures of human and financial resources, there is increasing poverty and deterioration in American cities. Homeless people remain on the streets and in public places, the most visible reminders that something is seriously wrong with our social and economic policies. In much recent research on homelessness, opinions about its definition and extent are hotly debated. If there is little consensus about the number of people homeless nationwide, assumptions about the responsibility for homelessness fall into two familiar categories, with adherents from each side holding the other responsible for sharp increases in the number of homeless. One faction contends that economic adversity causes average hardworking people to end up on the street through circumstances beyond their control; the other group blames those who have become homeless for failing to take responsibility for themselves.

The term 'homeless' has sparked heated controversy ever since its first use in January 1981. Shortly after Ronald Reagan took office, a group of activists led by Robert Hayes and Mitch Snyder used it to describe people sleeping in public places, wandering the streets with their possessions in shopping bags, rooting through garbage bins in search of food or aluminum cans, and asking for handouts.¹ Over a decade later, 'homeless' serves to homogenize a diverse population with a variety of disabling conditions besides poverty: people addicted to drugs (espe-

cially crack cocaine) or suffering from alcoholism, women battered and abused by their alcoholic or addicted partners, individuals with mental illnesses, tuberculosis patients, people with AIDS, pregnant women with addiction problems, runaway children, and veterans with post-traumatic stress syndrome.

Pinning down the homeless population with statistics is notoriously difficult, and there is no reliable source of data on its size. Information contained in the *U.S. Conference of Mayors' Tenth Annual Survey of Homelessness* (December 1993) indicates that 48 percent are substance abusers, 27 percent are mentally ill, and 9 percent have AIDS.² The survey reports wide disparities in typical profiles of the populations seeking assistance in the 26 cities participating in the survey. The reasons cited for homelessness, however, are consistent: substance abuse, mental illness, a lack of jobs or marketable skills. In light of the statistical evidence that physical and mental diseases afflict over three-quarters of the homeless population, the report's recommendation that the best way to decrease the number of homeless people is to increase the availability of government-subsidized housing seems remarkable.³ The need for affordable housing in desirable neighborhoods is an abiding social reality, and there is a critical shortage of it in desirable neighborhoods for those in need, especially families with children. But because most people considered homeless face problems more complex than lack of shelter,

housing alone cannot solve the problem of homelessness. Without help for their disabling conditions, people in need are unable to maintain themselves in adequate housing.

Earlier this year, after news reports that a homeless woman had frozen to death in a bus shelter across the street from the Department of Housing and Urban Development, HUD Secretary Henry Cisneros made reducing homelessness a top priority and doubled the money allocated for emergency shelters to \$800 million for fiscal 1994; he hopes to persuade Congress to increase the amount to \$1600 million in 1995.⁴ The assumption that short-term accommodation will somehow ease people into more positive social behaviors is pervasive throughout the shelter industry but has yet to be proven. Many reject shelter environments because of the appalling conditions that prevail in some of them, but also because they are overwhelmed by a sense of isolation. Others are unwilling or unable to comply with the rules for admission and resist any contact with the social services industry. Most shelters are unsuitable for women and families. Some, by creating exclusionary regimes similar to those of Victorian poorhouses, deny space to those who are drunk, on drugs, or exhibiting symptoms of mental illness. The notion that most people use shelters for a short time persists, despite statistics from the U.S. Conference of Mayors report putting the average stay at seven months and running as high as eighteen months in cities like San Diego and Miami.⁵ Resources allocated to homeless shelters could be better spent on transitional, supported, and permanent housing, rental subsidies, and accompanying treatment programs. It is ironic that impoverished people entitled to a housing subsidy of \$250 a month receive the equivalent of over \$3,000 per month when they live in the average shelter.⁶

By now it is more or less accepted that architects are not responsible for the spread of homelessness, but many feel an acute sense of personal and political obligation to help alleviate the suffering of homeless people. Unfortunately, well-intentioned efforts often support the flawed public policies that encourage cities to spend vast sums on temporary shelters instead of recovery programs and permanent housing. City councils nationwide have waged divisive battles over campgrounds for the homeless or the location of homeless shelters, which if built invariably wind up in the poorest neighborhoods. Architects' responses to the plight of the homeless display both formal and technical ingenuity, of a sort: domes of molded fiberglass powered by solar energy, demountable Quonset huts with vinyl fabric stretched over curved steel frames, collapsible trailers sleeping from one to eight persons, mobile homes for pedestrians with hand trucks for the collection of cans and bottles, modular plastic shelters, insulated tents in various configurations, layouts for urban campgrounds. The assumption behind these devices—that shelter in city parks or vacant commercial lots is an adequate response to urban homelessness—helps to sustain the illusion that the complicated needs of homeless people can be satisfied by rudimentary shelter. Urban campgrounds quickly become degraded ghettos, further isolating needy people who should be in treatment facilities or permanently housed in stable residential neighborhoods.

Shelters may help people to survive but not to put their lives back together. As semi-permanent dormitories, they are places of discard rather than sanctuary, fostering a life of dependence and marginality—sad symbols of a nation that has given up on its most vulnerable citizens. Building shelters and rebuilding marginal dwellings similar to the

old SROs will do nothing to resolve disaffection and serious health problems or the disabling conditions and social stigma attached to them, in relation to which homelessness is only the most visible symptom. To preclude homeless people from living healthy and productive lives is to expect less for them as human beings. To perpetuate dependency and hardship by providing inappropriate shelter and emergency services is an inadequate response to an intractable social problem. Only when individuals can make substantial progress in overcoming their disabilities is independent living in subsidized housing a realistic goal.

Too often in the recent past, architects have assumed a position of passive acceptance as the important decisions about how our cities are arranged were made by others. Some argue that urban campgrounds and homeless shelters are better than nothing. Perhaps. But with the best intentions—often low fees or no fees—they also prop up failing social policies and perpetuate a cynical two-track urbanism that warehouses the neediest and most vulnerable citizens in subsidized ghettos. Instead of eliminating long-standing racial and economic divisions, this de facto urban apartheid serves to reinforce them—just like the public housing projects that trapped millions, many of them African Americans, in conditions of extreme squalor. Because shelters replace other efforts that would do more permanent good, such as treatment programs and affordable housing accompanied by improved schools, supermarkets, and police protection, they establish public expectations of success. When efforts that promise to end homelessness repeatedly meet with failure, as they have so far, homeless people themselves become victims of rising public resentment, in addition to the combination of prejudice and mistakes that keeps them on the streets.

Efforts to deliver social services that actually improve lives and neighborhoods might well make the public more willing to give support. If American society is to preserve the ideals inherent in the democratic system—the promise of equality and justice and the declaration that citizens intimately bound to each other can promote the common good—the responsibility to provide help for those least able to help themselves cannot be deferred. This means assisting those who are able to become truly independent and self-sufficient and offering true sanctuary to those who are not. The series of misguided public policy decisions that eliminated many of the traditional institutions which had evolved in cities to help the neediest and replaced them with facilities and programs for those who could afford to pay for them, has created unintended but very real misery.

To recover the sense of public purpose that used to be a hallmark of our profession, architects need to become advocates for more enlightened policies and designers of places and things that offer real help. Resources currently allocated to shelters and soup kitchens can be better used for treatment centers providing on-site care and structured therapeutic facilities affiliated with them to support sustained recovery, halfway houses and substance-free long-term living environments away from areas where addicts congregate, supervised housing in residential neighborhoods convenient to public transportation for those who represent no threat to their neighbors: All are cost effective alternatives to institutional care. Facilities designed for families can remove women's fears that seeking treatment will cause them to lose their children. Smaller multi-family housing development with responsible property management that screens prospective tenants and expels those who break the rules offers proven success as a model

for urban neighborhoods. Architects have been accused, often fairly, of indifference to the lives of ordinary people. After a period characterized by purely decorative obsessions, it is time for architects to re-establish a commitment to the real and public environment of everyday life and return architecture once again to the task of making successful cities.

NOTES

1. Christopher Jencks, "The Homeless," *The New York Review of Books* (21 April 1994): 20.

2. "Homeless: More Families on the Street," *Los Angeles Times* (22 December 1993): A1, A16.

3. "New War on Homelessness Urged: Federal Plan Would Carry Aid to the Streets," *San Diego Union Tribune* (21 December 1993): A1, A23.

4. "A Growing Percentage of the Homeless Are Families, a Report Says," *The New York Times* (22 December 1993): A8.

5. *San Diego Union Tribune*, op.cit., 23.

6. "Homeless Shelters Drain Resources for Permanent Housing, Experts Say," *The New York Times* (26 July 1993): B12.

On Urban Making and the Craft of City Design¹

John Kaliski, AIA

I. BERLIN DREAMS

In comparison to architecture, city design revels in dilemmas of good and evil. While the design of most buildings in the city is a piece by piece undertaking, usually of small significance (though endlessly debated among architects), the making of the city itself is a continuous exercise in the establishment of social and cultural value. This maxim presents a challenge to what might be defined as 'architecture culture': that spectrum of conversation and tradition that shapes the education, practice, and world of the individual architect in relationship to other architects.

Architecture culture is uncomfortable with the idea that forms, particularly forms within the context of the city, are declared complicit. The individual architect, trained to place a premium on the autonomy and timelessness of object by object architecture production, becomes confused when civil society argues for (or against) the value of individual forms based upon everyday concerns. The democratic city, for its part, is bewildered by that culture of architects which seeks an aura of beauty that is removed from the cultural and ethical dilemmas that are daily debated. Civil discourse quickly loses patience with the architect who presents aesthetic forms as a substitute for social debate.

For most architects, forms are innocent and people are guilty. This sensibility is wonderfully illustrated in Leon Krier's monograph on the work of Albert Speer, Adolf Hitler's personal

architect.² The dedication proclaims, "This book cannot duplicate the crimes of a regime or a man. Classical architecture and the passion of building are its only subject, its sole justification."³ Krier goes on to celebrate the formal beauty of Speer's abstract classicism and, based on stylistic grounds only, to challenge the condemnation of that classical architecture. Further, Krier goes beyond praise of the individual structures to also proclaim the beauty and timeless authority of Speer's plan for Berlin. Speer's urban design concept, completed in the late 1930s, features a great axis of public and private structures slicing north and south through the city. Enamored by the deft manipulation of architectural language, Krier overlooks the insistent physical diminution of the individual body, the use of form to manipulate and subjugate the individual to the will of the state, the masking of the River Spree by the proposed Grosse Halle, the planned destruction of fifty thousand apartments, and the acceptance of architecture as an urban art of mass spectacle and consumption (as opposed to dwelling and habitation); he declares this city design good.

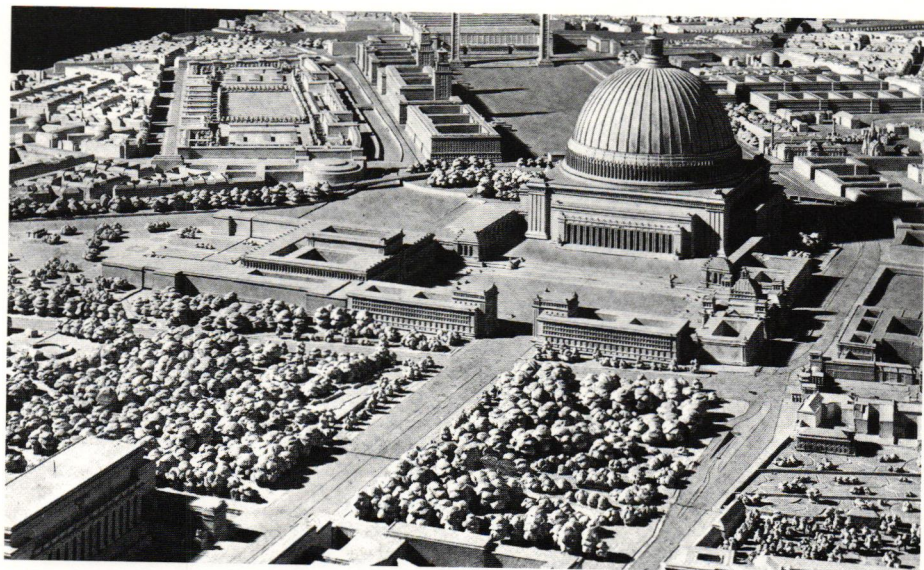
By contrast, in the same book, Albert Speer is quoted stating a somewhat more scrutable position: "...My buildings were not solely intended to express the essence of the National-Socialist movement. They were an integral part of that very movement." Speer, while admitting his own atavistic attachment to the forms, nevertheless

grope towards a more complex understanding of the relationship of his urban achievement to the indelible history which now marks it. Within the context of a discourse of the design of the city, as opposed to the private debates of architecture culture, the forms cannot be so easily separated from the crimes and malevolent intentions of their creators.

As the frictions of interest group politics become ever more present in the shaping of the life and form of the city, the potential for form to engender meaning surfaces in civil discourse. Albert Speer's plan for Berlin would be unacceptable in civic culture at this time precisely because its ethical dimension is untenable within our present social framework. Speer's work, despite Krier's protestations to the contrary, is bad civic design regardless of the merits of its forms within an autonomous architecture culture. By not recognizing a distinction between making architecture and making the city, Krier unwittingly promotes a sartorial classical urbanism that bears little distinction from the freeway building and urban

clearance which destroyed American cities in the years after the Second World War.

Krier's confusing of the tectonics of object making with the constructs of city making is characteristic of the contemporary architectural profession. Architects revel in essentialist intellectual constructs (passion for building is its only justification) that project an architecture or urbanism unfettered by the ethical and moral dilemmas that shape everyday life. In its many forms, architectural essentialism allows architecture culture to remain 'neutral' at precisely the moment that society demands taking a position. Within the context of a democratic culture (even an imperfect democratic culture such as that which exists within the United States), the demands of public discourse leave little room for arguments about the neutrality of forms. Within the city, the justification of form by formalisms reduces the architect to a secondary position, and thus the physical quality of the city becomes a secondary consideration in the debates that swirl around the establishment of public policy. Over



Albert Speer's and Adolph Hitler's Grosse Platz, Berlin, 1937-1940.

and over, architects propose well proportioned equivalents of Speer's Berlin axis only to see their ideas flattened if not outright rejected by the subsequent debate. Architects well understand that the specialization of the city planning professions contributes to the diminution of roles for architects in urban design: however, architects have yet to recognize that a professional culture that defines form as neutral creates a dynamic of professional crisis which leaves the architect increasingly mute within civic discourse on city making. If the architecture profession desires a stake in the production of the good city, then it must engage the political and ethical forces that shape the city as well as the design of individual buildings.

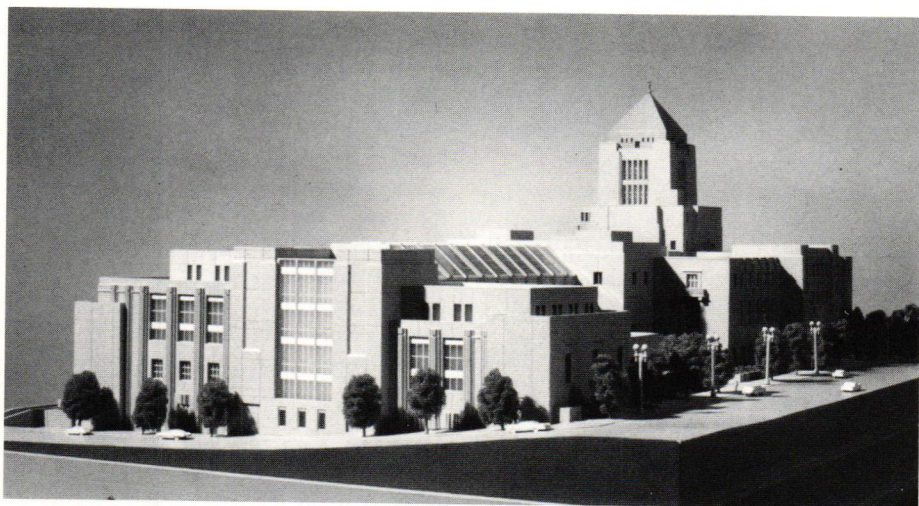
II. THE GOOD LIBRARY VERSUS THE GOOD CITY

The assumption of a political and ethical framework for architecture production within the context of the city is no doubt considered by many architects in their daily design tasks. However, despite the good thoughts, the assumption of a critical urbanism as a shaping force of architecture production does not automatically lead the architect to production of 'the good city'. This is particularly so if the urban design modicum is based upon a practice of precedence. When the architect leaps towards an urban architecture generated from design precedent, the architect runs the risk of overlooking not only the relationship of form to advances in technology but, more importantly, the transformations in the present forms of the public realm.³ In this situation the architect, once again, takes the position of projecting a singular unified three dimensional world that at best addresses the needs and desires of only a small segment of the city's population: usually an empowered elite. Even when this elite is benevolent, its singular voice

cannot adequately represent the multiple interests and perspectives of the present city. And the falsely unified urban forms that this elite engenders exacerbate the contradictions resident in a heterogeneous city.

It is indeed difficult to establish the ideal form of a just city. And the difficult place of architecture within this practice is exemplified by the recent rehabilitation and addition to the historic Central Library in Los Angeles. This venerable building, completed to the designs of Bertram Goodhue and Carlton Winslow in 1926, sits in the middle of Downtown Los Angeles and in the best sense is a beacon of learning, a temple of Los Angeles history, and a respite from the commercial life bustling all around it. The subject of decades of frenzied debate, the final decision to save the structure was not made until the city and adjacent property owners were able to conclude a complex public/private air-rights deal guaranteeing private dollars for both the monument's restoration and an atrium addition in exchange for the right to build adjacent seventy, fifty, and thirty story office buildings.

From the outside, the meticulous preservation of the historic structure and nearly seamless, yet modern annex by Hardy Holzman and Pfiefer, along with restored gardens and an interwoven public art program create a new focus for Downtown Los Angeles linking the north, south, east, and west sides of the central city. Inside, the elegant wood carrels, generous use of terracotta and brightly restored murals bespeak a type of interior public grandeur that for the most part has been eschewed in an era of budget cuts and engineered solutions. Physically, the Library project represents the promise that Angelenos might all inadvertently get together even if they don't always get along. While some have criticized the scale and complex eighties-style



Model view from the northeast, Los Angeles's Central Library, Hardy Holzman Pfeiffer, 1993. Photo courtesy, CRALA.

deal-making represented by the tall towers that paid for the Library's revitalization, in the final analysis arguments of what is too big, what is too complex, what detail doesn't work, or the lack of plan resolution are forgotten through the joy of personal use. From the vantage point of a history of city making, the library represents a neo-traditional attempt to reify central place making and establish a public common through the manipulation of monumental massing, volume, and landscape.

To some extent Los Angeles's Central Library is able to serve its public as a place of gathering. Universal access to its materials and resources is available and the generous quality of spaces and finishes provides dignified settings and shelter for anyone that enters. However, one may also argue that the very concept of an expanded Central Library in a city of enormous sprawl and diversity—as opposed to a restored Goodhue downtown community branch supplemented by the restoration and construction of other branches—is a limiting quotient to a broader definition of public access. In an era of instant communication, data explosion, and increasing sophistication

of the tools that manipulate information, the traditional city-building element of a central library is subject to questioning. A central library must be questioned not about the entanglements of its financial wizardry, the irresolution of adjacent building scales, or even its equivalence to a shopping mall, but, rather, about the act and expense of building a singular container in one place. Does a single central container, as opposed to multiple containers in multiple places, truly advance a civic end of empowerment and justice for the widest possible cross section of citizens across the widest possible field of space?

How many library containers does the attainment of the good city require? The Los Angeles Central Library cost approximately \$200,000,000. A personal computer costs approximately \$1000 and is capable of being networked into a wide array of information, programs, and services. Suggesting that the City of Los Angeles purchase and install approximately 200,000 computers in the schools, libraries and homes of this city, all tied into a 'Library' network is too utopic; and, realistically, it was not a technical option at the time this project was planned

and financed. However, the growing ability to increase access to manifold information does raise important questions with regard to physical shaping of future urbanisms, even as presently lauded urban design marches towards the neo-traditional. After all, why will people come to participate in a physical public life in a city center when they at best need only walk to a home study modemed to the world, or a neighborhood library linked to the Library of Congress?

The search for the form of the good city, when placed within an ethical discourse that considers justice, simultaneous points of view, and their intersection with complicated shifts in demographics and technology, casts suspicion upon the conventions of received urban design tradition and wisdom—whether in World War II Berlin or present day Los Angeles. Physical concepts of urban place, civic monument, community, neighborhood, boundary, and mobility have all been challenged by changes in the means by which cities are made to such an extent that the question for architects and urbanists becomes not will the center(s) hold, but what does a center, a neighborhood, or even a city look like both today and in the future?

III. THE CHANGING FORMS OF PUBLICNESS

Present conditions create circumstances where, like Krier, one can love the appearance of 'ideal' plans, or, like the City of Los Angeles, create an individual building of worth, and see each of these attitudes as superfluous to both a privatizing world and public discourse. The architect or city planner too often moves back and forth between two traditional approaches: either utilizing public form precedents for city making (such as theme parks) that are remote from cultural debates or creating non-physical orders (such as social policy)

that may result in individual monuments but rarely constitute a physical public realm. A critique of Speer's plan for Berlin or of Los Angeles's Central Library that is based upon a dynamic participation in the discourse of city making leads to the rejection of both of these approaches in favor of a new public realm made up of networks of places, situations, and experiences that are constantly unfolding and then being reorganized by the users themselves.

In a modern city a pressing need exists for the public and physical development of the network of everyday realities that typically are not seen or have no form. The idea of the just city is thus based upon an infusion of discursive publicness in previously privatized realms and access to publicness within familial spheres.⁴ With this as a framework for design the architect can begin to imagine places where public access is maximized even as private circumstances are maintained and vice versa. In essence, even as the public world of traditional architecture collapses, a new sensibility that blurs public and private takes shape.

What does this urbanism that is at once private and public look like? What does a network city look like? Who benefits from the network and how is access assured? Is the conversation of the network a substitute for the streets of the city? Even more, does the diminution of the discursive need for physical space redefine the stuff and location of the common? In every case these questions force an intersection of the physically imaginable with the ethical dilemmas of modern city life. While one can choose to ignore the forces that are pressing these issues to the forefront, to do so as an individual architect or as a profession only marginalizes the limited influence that the architect still maintains within public contexts.

IV. TOWARDS WORKING NOTATIONS OF THE URBAN

A first premise towards the construction of a theory of present urban making assumes that the architecture of the good city emerges from those locations and propositions that the traditional "word of stone,"⁵ as exemplified by Speer's Berlin or Los Angeles's Central Library, has covered or overlooked.

Within the realm of everyday urbanisms the following working notations suggest forms of the city that, while not exclusive, much less normative, do enable complexes and combinations of present conditions which are extraordinary in their implications for the physical shaping of the patterns of city life. While these notations are not yet visualized, they offer definition to a language that can catalyze city making and new city form when critical realms of the city cannot be seen or given value, positive or negative, for lack of images or words.

CITY AS HYPER-NET

The hyper-net is the network of urban relations made manifest by the physical and social form of the city. At once physical and ephemeral, the hyper-net allows for the simultaneous experience of local, regional, national, and global urbanisms and the familial context of community. The hyper-net is characterized by intensely localized urbanisms, a high degree of physical and communicative access to the city at large, and a sense of well-being created by inclusion in an immediate common. Unlike the traditional city where there is an almost equivalent correlation between form and cultural structure, where power flows from the center(s) and a singular public is assumed, the hyper-city is an everyday demonstration of the flexible and constantly changing dynamics of social, economic, and cultural relationships: Urban hierarchies are characterized less by their relationship to

center(s) and more by their access to the grid of the network. The hyper-net is the inversion of the neo-traditional city. As opposed to residences surrounding a center, hyper-net urbanism surrounds the familial and the natural with the city. In physical terms, as the network becomes more developed, the city becomes both more diffuse, more natural, and more urban at the same time.

THE PRIVILEGED IN-BETWEEN

The in-between are those places in the spectrum of the city that are typically ignored, declared blighted, or simply unseen by sanctioned urban policy. In opposition to a development of cities that always emphasizes the place of the enfranchised and the monumental is the insistent privileging of the unseen and in-between patterns of everyday life. The legitimization and incremental improvement of these places brings into the public realm activities and peoples who are left out. The locales of the in-between—and to a large extent these places are everywhere and beyond classification in terms of facile ideologies of race and class—house the realm of daily life: the street corners and the forgotten industrial zones; the convenience markets and the super markets; the underutilized rights of ways and vacant lots transformed into community gardens. Sometimes they are the left over neighborhoods ignored in the constant rush to create anew the American dream. Sometimes they are the new neighborhoods where trees have not been planted. What is common to all of these places is that they are quietly (and sometimes angrily) inhabited. Failure to nurture them or to maximize their linkage to the larger network of the city produces an unconscionable social and physical waste.

DESTINATION URBANISM

The public realm of the modern American city exists between the places that

are designed. The physical form of the American city is defined by the malls, redeveloped downtowns, festival market places, and themed attractions that clothe themselves in the symbols of the street but assiduously avoid the diverse situations of the democratic city. These attraction destinations carefully circumscribe discourse and generally reduce active life to passive consumption of goods and canned culture. As a result, public life always exists outside the exit door, in the parking lot, or on the other side of the fence. A new destination urbanism has to emerge that infuses the privatized public realm with the situations and institutions of daily life, whether it be the university in the shopping mall, the reinvention and nurturing of the public soap box in the digital park, or the collision of visible and interactive government within the residence—defined as destination—itself. A conceptual urban street as an active realm for the display and resolution of otherness and difference must be present in those places and situations that define American life.

CITY RECYCLING

A corollary to the tenets of hyper-net urbanism, the privileging of the in-between, and the creation of destination urbanism(s) is the necessity for the insistent recycling of the human and physical resources of the existing city. Policies that subsidize the creation of new towns, edge cities, peripheral cities, and destinations such as theme parks and single purpose shopping malls—even as the existing everyday city self-destructs for lack of an equitable distribution of resources—are negligent. Recycling of cities, in and of itself, cannot occur until society recognizes that the unseen and the in-between exist and have more value than the ceaseless and speculative consumption of the periphery by ill-thought-through real estate paradigms. The recycled city that privileges the

forgotten and the left behind rejects the grand gesture that requires displacement of homes or natural features or demands total destruction of present built environments or social patterns. Instead, recycling favors the incremental gesture, gradual infill, and making do with existing conditions.

THE FLEXIBLE CITY

Recycling based upon the revitalization of that which exists depends to a greater extent on the infusion of new situations which have clearly understood physical intentionality than on the development of privatized physical forms into which programs are stuffed. Thus the city increasingly is made attractive by nurturing the situationally ephemeral and the physically transitory. Acknowledging the situational, which is not legitimized by real estate paradigms, as having an equal place-generating potential in the making of cities emphasizes the programmatic as initiator of a flexible urban environment. Situational places—whether cobbled-together back yard structures, day labor zones, festivals, farmer's markets, or swap meets—all become opportunities for designing the flexible city.

Often the architecture and form of situational places is as simple as the planting of a tree, the careful placement of a bench, or the hanging of an awning. Cities ought to have publicly available warehouses of temporary fittings, tools, and trucks (along with urban cadets) to quickly mark, define, and nurture the transitory and ephemeral activities of its citizens. The situational city is able to nurture sub-cultural activities, popular movements, and fashion. At the same time the active linking of transitory places through communications and mobility assures new levels of access and opportunity for a broader cross section of the city's population. A city where the ephemeral is recognized will naturally be more flexible than a

city that relies on the making of monuments which symbolically represent the small empowered public even as the broadest public carries on life elsewhere. In the flexible city, as often as not, the city comes to the people as opposed to the people coming to the city.

SITUATIONAL JUXTAPOSITION

If the good city is marked by its support of sub-cultural productions and flexible forms, it must continuously juxtapose unlike situations. In the modern city, the public realm exists within the frisson created by opposites coming together. The modern city is marked by its specialization of land uses and programs whether it be singular financial centers, separated manufacturing zones, or bounded residential enclaves and the consequent fracturing of interest groups into competing publics. Each resulting group prioritizes the immediate benefits of separateness. Situational juxtaposition fuses 'unlikes' as a means of stimulating evolution of individual discourses and growth of new public entities and spaces. The overcoming of separateness through purposeful situational juxtaposition ultimately forces the cultural and physical evolution of the modern enclave city into a more just form of space. Much of this urban operation will evolve based upon the commingling of private activities and patterns of daily life directly within the surface veneer of places that today accommodate spectacular consumption or establish public discourse for only one group. Official public places such as parks, schools, city halls, and police stations are injected with the programs of everyday life such as auto repair, convenience shopping, going to church, and physical recreation. Meanwhile, previously private enclaves such as the single family house which have been passively cast in the harsh light of pub-

lic spectacle become interactive destinations of debate and discourse.

COMMON NATURE

Linking both the conceptual and physical framework of the city must be a common nature. Common nature is the recognition that the natural world and cycles are present in every act of urban making, even when that act obscures the balance of nature. Common nature is the creation of a mutual ecology in the act of building the city. The practice of a mutually developed ecology is as a matter of course supportive of the further recycling of the city's privileged in-between.

THE NARRATIVE CITY

The contemporary city is defined by the ability of each individual and each group to construct their own city story with its own destinations, its own networks, and its own flux. In essence, the narrative city is the meta-dimension that links the complex whole of the city and allows each of us as individuals to create order and see beauty within a simultaneous landscape. The city becomes an ever-shifting narrative that, while individually established, constantly comes into contact with the multitudinous voices, groups, and situations of the city that in and of themselves are constantly defining their own urban place. While the narrative city absorbs the official public and private forms of the planned metropolis, it also dwells within the privileged unseen and constantly emerges in places and in forms that are unexpected. Coincident with the physical and communicative networks of the city, the activity of each of us—defining our own city and using it as a reference point to describe our differences—constitutes a new public realm: it is marked by physical places and inscribed within natural topos that contradict the unitary and essential physical form which has defined the city through history.

V. SUMMARY

These contingent definitions of key aspects of the emerging city defy utopic sensibilities; they are grounded in the close observation of the daily social and physical situations of present urbanisms. The insistence upon an ethics of city ecology and urban recycling in every act of city making rejects growth paradigms that clothe themselves in traditional forms as a means of obscuring land development policies which privilege only a narrow segment of the city's publics. At the same time, acceptance of everyday situations and the privileging of the unseen makes sense out of the sometimes disturbing cacophony of the modern North American city: this city is both a sign of everyday neglect and a symbol of the emerging practices of competing publics that traditionally have not had the means to express themselves. As modern technologies allow for the continuous establishment of simultaneous discourses, attempts to control the complexity of these public expressions through traditional urban design policies that emphasize a singular relationship between form and policy can only meet with failure.

The architecture and form of yesterday's city was based upon the autonomy of a single public and the ability of that public to express endurance through physical form. While thousands of years of accrued city building suggest a complexity, richness, and freedom that we admire in older cities, in any given life span the making of the architecture of the traditional city tends to oppress those other publics that are the subject of change defined from above. The good city quest now is to compress the accumulations of time into a city-building moment that takes advantage of the full spectrum of everyday situations such that each of us can experience the freedom

that results from the pleasure of the urban. The world of stone which projects universal truths through singular city forms is ruptured. Architects can choose to be overwhelmed by the complexity of the visual chaos of the modern city and reject its discontinuities and fragmentations for simplifying urban homilies, or we can embrace the physical ordinariness of everyday life and envision the physical potential for framing the activities of simultaneous publics—as the first gleanings towards the design of the good and democratic city.

NOTES

1. Many of the ideas of this essay were developed in collaboration with Margaret Crawford, Chair, History, Theory, and Humanities Programs at the Southern California Institute of Architecture, to whom I am indebted.

2. Leon Krier, *Albert Speer: Architecture, 1932-1942* (Brussels: Aux Archives D'Architecture Moderne, 1985).

3. See Jurgen Habermas, "V: The Social-Structural Transformation of the Public Sphere" in *The Structural Transformation of the Public Sphere* (Cambridge: The MIT Press, 1992), 140-180.

4. See Seyla Benhabib, "Models of Public Space: Hannah Arendt, the Liberal Tradition, and Jurgen Habermas" in *Habermas and the Public Sphere*, ed. Craig Calhoun (Cambridge: The MIT Press, 1993), 73-98.

5. Krier, *Albert Speer*, 228.

Technique in a Poetic Act: The Making of Architecture

Marc Angélil

Technique within the field of architecture is commonly referred to in two different meanings of the term. The first identifies technique as the ability with which the architect, builder, craftsman, or maker employs the skills of his particular art. The second meaning of the term is considered as the body of specialized procedures and methods used within the field of architectural production. The former definition is direct and active, engaging the maker with his means of production. The latter is distanced and general, assuming a certain objectivity for the systematization of the field. Architectural production requires the specific technical skills for the art of building construction as well as necessitating a general framework for a structured field of knowledge determined by the science of building technology....

With the gradual development of modern science, human thought and action became increasingly dominated by rational constructs. In juxtaposition to such an understanding, Giambattista Vico, at the beginning of the eighteenth century, spoke up for the primordial knowledge that stemmed not from reason but from imagination.... Western philosophical thought was dominated by reason with thought processes grounded on the idea of reason coming to terms with the concreteness of experience as perceived. Vico broke with that tradition and proposed for science the reconciliation between rational structure and mythical sphere which lies in human imagination. Vico assigned what he called *fantasia* to the imagination which played a primary role in the

act of making wherein the meaning of things is created through poetic thought.¹ Imagination, according to Vico, is the power of understanding something from the inner perspective of its existence and is inherent within the poetic act which holds human thought and action together. Technique in this sense was considered to unify the poetic component of mystical thought with the structure of rational thought embodying, therefore, the rational-irrational moment within making....

Vico's conception of the imagination was centered on poetic thought through which image and rational idea are understood. Memory has an important role in Vico's propositions; it is the means by which to recall original thought and to revoke the fantastic creations of mythical thought. Those constitute the base of imaginative universals, of *fantasia* as a way of thinking and acting. Vico's ideas generated philosophical understanding from the image rather than from rational categorization. Memory and imagination were considered powers providing man with an inner perspective. Within the development of modern science, memory and imagination, according to Vico, permitted man to overcome the externality of the world and to enter the original immediacy of the human mind.

The concept of modern science, viewed from such a vantage point, offered the possibility for reconsidering the spiritual and symbolic aspect of technique in order to incorporate the notion of the irrational and mythical moment of human understanding.

Man's faculty to create and produce within Vichian philosophy originates from his ability to recall the metaphors of his imagination. Historically those were rooted in fables, myths, and fantastic creations of the mind. Vico saw a primary base of educational value in imagination and memory. He argued that an early training in logic was unnatural; instead education must address the sensibilities, feelings, metaphors, and memories upon which human culture was founded. Reason could then develop on the foundations of imagination, allowing a fruitful interaction between mythical sphere and rational structure. Vico believed that conceptual reasoning as understood in modern science could only develop on the foundations of imaginative thought. Descartes's philosophy, for instance, required at base to be founded on imagination. In Vico's view the ingenuity Descartes sought...presupposed the ingenuity of the mind trained in metaphor to produce the grounds on which such a conceptual process could take place.

Modern science failed to maintain its bonds to the origins of imaginative thought; it became purely conceptual. Similar was the development of technology; the emphasis on rationality in scientific thought became the primary characteristic for technical understanding. Rationality, best exemplified in systematization, division of labor, creation of standards, and production norms, led to the reduction of method to its logical dimension alone, excluding spontaneity, creativity, and imagination. Every intervention of technique became in effect a reduction of facts and principles to the schema of logic. Technological order in the modern era, following the premises set by the Cartesian model of mind, was functionalized, reduced to efficient procedures, and totally devoid of poetic meaning. Descartes's method was taken as a pre-

scription for a step-by-step organization of thought and action.

The development of contemporary life can be thought of as constituting the progressive transformation of Descartes's...formula for thought into a formula for the organization of action. Such a characteristic of contemporary society is marked by the ever expanding application of the principle which Jacques Ellul in his book *The Technological Society* identifies as "efficient ordering."² It is widely felt today that the process of technological ordering, as with the technique of production in architecture, does not address the question of meaning. Rather it seems that all aspects of life are increasingly turned into procedures. Through a process of selection of most efficient means, technique becomes the guiding factor in determining every aspect of life; all human activity is ordered into patterns and step-by-step processes. With every new structuring of technical means there occurs a heightened sense of improvement and a widening sense of further applications. Herein lies the implied meaning of contemporary technical production.

Technology must re-address the imaginative content of creative production. Within architecture the act of making should go beyond the understanding of building as a purely operational necessity by which to satisfy functional requirements. The process of making should open for the production of architecture the creative and imaginative possibilities of the technical means involved in building construction. This reorientation is not to be based on a nostalgic recreation of past techniques but instead must address the poetic structure of contemporary building methods. These are to be exploited in their own terms, that is by understanding the qualities inherent within the techniques which are invested in the act of making. The maker must begin mod-

estly with actions which he understands; what he makes must be intelligible to him. He requires knowledge of technique in order to conceive of all possibilities integral to his means of production. Within the understandings of the instruments, methods, and processes of technical undertaking lies the source of poetic meaning. It is our task to discover the poetic component of technical matters in order to conceive of a meaningful architecture. The structure of conceptual reasoning, which determines contemporary technology, is not to be rejected, but needs to be exposed to imaginative thought. Since imagination constitutes the power to understand things from the inner perspective of their existence, it has the potential to disclose the poetic moment inherent within things and their process of coming to being. Imagination reveals the spiritual and symbolic aspects of technique in a poetic act, that of making.

NOTES

1. Giambattista Vico, *The New Science of Giambattista Vico*, translation by Thomas Goddard Bergin and Max Harold Fisch (Ithaca: New York: Cornell University Press, 1984).

2. Jacques Ellul, *The Technological Society* (New York: Vintage Books, 1964).

Excerpted from "Technique and the Metaphysics of Science: The Rational-Irrational Element of Science-Technology within the Making of Architecture," The Harvard Architectural Review 7 (1989): 62-75.

When I look at the world, there are no boundaries...

Coaxing Old Orthodoxies into Revealing New Complexities

Robert Irwin

Robert Irwin's repertoire of provocative projects—built and unbuilt—for outdoor sites and gardens continues to expand the frame of reference within which he explores ideas that can be traced back to his early paintings. But it is the specific nature of each site, of the natural topography and the urban or architectural character of the place, that underwrites the designs for works like *Tilted Planes for The Oval Mall, Ohio State University at Columbus* (proposed in 1978), *Portal Park Slice for the John W. Carpenter Park in Dallas* (1980), *Filigreed Line for the campus of Wellesley College in Massachusetts* (1980), *Two Running Violet V Forms for the Stuart Collection at University of California, San Diego* (1983), *Nine Spaces, Nine Trees for the Public Safety Building Plaza in Seattle* (1983), the proposed *Arts Enrichment Master Plan for the Miami International Airport* (1986), the proposal for *Three Project Sight Lines* (*Fallingwater, Millrun, Pennsylvania*, 1988), the *Sentinel Plaza for the Pasadena Police Department* (1990), and *Allée the unrealized project for a gateway to Albertville for the 1992 Winter Olympics* (*Rhone-Alps, France*, 1990). The task of creating open places for architectural or urban spaces has occasionally taken Irwin into the realm of collaborations with architects. At the moment, he is finalizing the plans for his *South Roundabout in the ambit of*

Las Vegas, a work destined to redirect the traveler's focus at the same time that it channels traffic. And, there is also the ongoing project for the gardens of the new Getty Center in Brentwood. Here, the artist talks about some of the principles at work in his designs for site-generated works, and reflects on the historical trajectory of his aesthetic investigations.

When approaching projects that are intrinsically related to built spaces—like a garden confronted by the clear and demanding geometries of Richard Meier's architecture for the Getty Center—and in pursuit of a *conditional* art, I look for a connection between the architectural geometries and the myriad simple and complex geometries found in nature—like the evolving bud of a flower, or the multiplicity of leaf forms. I have tried to develop those geometries into the large and small forms of the garden. Geometries compounded by repetition become patterns, and in turn, patterns are repeated until they become the rich textures of a layered garden experience.

In this particular case, where the space of the garden had in effect made no real decisions about its becoming, a space left over, where the built space left off, it is important—if the garden is to have the significance assigned to it—that it make some decisions on a scale

that would provide it with a clear sense of place. Probably the most important move I made was to recapture the lower slope as an active part of the garden, giving the garden enough scale to accomplish its mission. I redefined the space, turning it back into the canyon it had been, developing the original geometries of the fault line, and incorporating the required water element as the stream defining that line. To this I added a corresponding stand of trees of a significant scale. Another idea I employed to weave the parts together was to develop a clipped geometry for the crowns of the trees on the outside, where the stand of trees interacts with the architecture, while on the inside leaving the natural complexity and the richness of the plants and trees—setting up a counterpoint between the more controlled geometries and the more organic integrated forms where the plant material can take over and weave its own kind of magic.

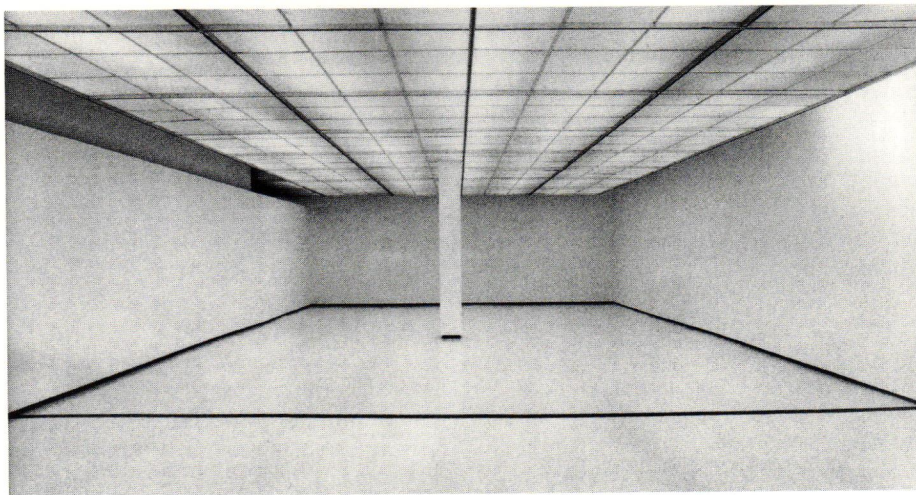
To accomplish this, I am now spending a good deal of time doing my homework, to find the kinds of trees and plant material that will lend themselves to achieving such effects. A visualization of this kind requires a tremendous amount of care and maintenance in order to sustain its complexity. It also requires a considerable sensitivity on the part of the gardeners—sensitivity to the plant material as well as the imagery they generate and the original intention. This garden is a special gift of the Getty Trust, a thing rare in the world today, something carefully considered over a long period of time. It's a gift I hope I can take full advantage of.

Years ago I visited a Zen monastery in Kyoto, and saw a garden that struck me as the ultimate thing you could aspire to *do* with plants. It was a wall of plants about 30 feet high and about 150 feet long, I don't know how many plants, or how many kinds of plants, but they have, over time, grown to-

gether, carefully woven together into a single densely textured and highly variegated tapestry of plants. It struck me that this is just about as far as you can take the idea of a continuity of time. It was simply staggering in its effect.

Now, when I look back over all the time I spent with increasing reductions in my paintings, I realize that much of it was simply me 'growing up'. When I first began to realize that there were many arbitrary things in my paintings, I made the simple parallel observation that all those arbitrary things are there because I'm arbitrary. So I began imposing on myself certain kinds of disciplines that slowly clarified things. At about that time, I made another very simple observation: in the field of a painting, everything by its very presence demands a certain amount of attention. Therefore every single element has to really contribute, or by its very presence it takes away from the overall coherence of the painting. And in most of my paintings—maybe in a lot of people's paintings—there were too many things that didn't really contribute.

Just on the basis of that, I went from being an abstract expressionist to doing paintings with just two seemingly straight lines, and having no central focus, without knowing where I would end up. For a while, this reduction was being read as 'Zen-like'—and in one sense, it was. But I was about as Zen-like as a California surfer. Actually, I wasn't at all sure what the fruition of it would be. At one point, I thought I was going down to zero. And where do you go from there? During all that, the idea of the reductions made perfect sense. At the same time, though, I lamented the loss of all this density of richness. But I didn't have a legitimate way to get it in. In other words, one has to have an understanding of the *why* and *how* of something in order to avoid its becoming mere clutter. It isn't enough to qualify it romantically, or append it to



Black Line Volume, Installation 1975-76, Museum of Contemporary Art, Chicago.

external truths, or simply to be expressive, or any of the other rhymes and reasons that we come up with.

The thing you learn when you get down to where you only have one or two things in a painting is how complex the visual vocabulary really is. When I would take students to look at paintings, I'd say "I want you to *look*; I don't want you to look at the subject matter, or think about whether you like it or not. I want you to look only at the edges, at how each thing relates to the thing that touches it on the canvas." While in nature, things don't necessarily touch each other in the physical sense, though they may come *close* to touching, or they may overlap, in a painting, everything *touches* everything else.

In any painting, this is a critical moment, whether two visual elements lap, overlap, slam together, or come up and just stand there facing one another. I'm talking about the actual interactions on the surface of the canvas. In this sense, it comes down to the fact that a painting is made up of many elements, edges, surface, paint, color, etc., and when you really control all of those elements, when all of those elements really work for you, the painting gains its proper authority—whatever the so-

called subject. Plus the fact that this kind of complexity of relations generates and gives the whole thing an added sense of *mystery*: People won't necessarily understand *why* it has the power that it has, but they will feel it.

The first abstract expressionist paintings I ever saw were in a show out here in Los Angeles. I had started painting as an abstractionist, but had never been to New York, and I eagerly went to this show that was hung in the museum—at that time, just past where the dinosaurs were installed. You came past the dinosaurs, and there were the first two paintings, one a great big James Brooks—huge, I think it was twelve feet by twenty feet—with black shapes and white shapes, red and green. He had used the maximum value changes, maximum hue changes. It also had scale. Next to it there was another painting, a little Phillip Guston, you know, one of those scrumbly kind of paintings everyone tended to criticize for being a little too 'French'.

But the amazing thing was that, standing fifty yards across this room, that little Phillip Guston blew the Brooks right off the wall. And I said to myself, what's happening here? How does this little painting blow that big

painting off the wall? By every quantitative measure, the Brooks has to be the strongest painting. There was the *mystery*. And the key to it was, that in the James Brooks, two and two made four—in the Guston, two and two never made less than five. It had to do with the fact of what happened in the changes of surface, what happened when edges touched, what happened when colors came together and acted upon each other. And these things were continually multiplying. It was never just ‘red and green’; there were five, six, seven, eight energies at play. When you look at two-plus-two and it makes twenty, there is one of the mysteries of life. And that little Guston painting had it—and I had my first real introduction to the world of considered relations.

I realized that one of the problems with most paintings is that they are riddled with all kinds of things that are not resolved or necessary. So that when you get down to just two or three elements, and you think it’s a very ‘simple’ painting, if you are really in control of the thing, those two or three translate into twenty-five, or fifty, or one hundred. So that somewhere I got—or at least approached—the idea that everything in the painting had to work, or at least be addressed; nothing could just be gratuitous, left in, left out, or left over.

But after getting to that point, I abruptly came to the problem of the painting’s boundaries. All of the sudden I realized, that’s not how we see the world. We don’t see the world with boundaries like that. This pictorial reality is a highly stylized learned logic. It works, we do see and organize the world in this way. This is no argument against it per se. But I had to ask myself, how do we so rationalize carrying on the bulk of all our dialogues from this single point of view, as if this were reality, when in fact, in many ways it lacks the fundamental credibility of a reality. Because when I look at the

world, there are no such boundaries. It is a seamless envelope. This thought caused me to try to paint a painting that doesn’t begin and end with such a limiting logic.

If this idea of a painting confined inside its own boundaries is a highly stylized learned logic, I asked myself, how do I continue? So I broke the frame—which ran me aground of something I hadn’t thought about, because on one level, it made perfect sense, and the trajectory of modern art was definitely going that way. Once I broke the frame, I realized that in doing so, I had also broken the time-honored basic agreement that determines how we presently carry on all of our dialogues. The minute you transgress that agreement, once you step outside it, it becomes such a gross ‘either/or’ proposition that everything has to be taken as ‘in’ or ‘out’. The beauty of such a time-honored proposition is that anyone truly conversant with the history of painting can recognize and value even the slightest of changes. You have here a marvelous context for the most intricate and subtle kinds of readings. But when you break out of this agreed-upon mode, suddenly the one critical question is how exactly are we to understand ‘things’ in this extended realm?

In a sense, that’s still the biggest problem for art right now, and certainly for anything I’m doing. It boils down to the question, if we are to seriously extend this reality, on what grounds do we go about making all of those critical determinations that are absolutely necessary to deciding what it is, what does it do, what does it mean, whether we like it, don’t like it, and so on? Determinations like those become very, very difficult. Since all information is contextually bound, and all understanding is understanding within an active frame of reference, the key question is what would be the operative frame of reference for such an extended art? To sup-

ply this operative frame of reference is the one critical task of my generation.

The thing I noticed when I first broke the frame was the *shadow*, which seems like a fact of life on one level. But on another level, it doesn't exist. This shadow stands as the perfect example of how to move from the quantitative to the qualitative realm. On a quantitative level, the shadow has no existence—it can't be weighed; it can't be measured; you change the light and it's gone. So, basically, from the quantitative point of view, it has no purpose, no function, no meaning: it's a quantitative zero. However, from a perceptual point of view, you can't see without it. The shadow and all its nuances are critical to how we see and make up the world. I love that proposition. On the one hand, it is essentially meaningless; while on the other side, it is absolutely critical. For me, this is where I first met head-on the realm of the phenomenal, and, without getting into it at length, I see in it the reason for the emergence of the manifold complexities of modern thought. So I began to try to address what was going on in that area immediately around my object. And, like following a single philosophic thread, it became its opposite. When you get all the way down to where you've reduced it—in terms of the quantitative—to zero, it suddenly turns around and the rationale becomes very obvious: the emergence of the qualitative.

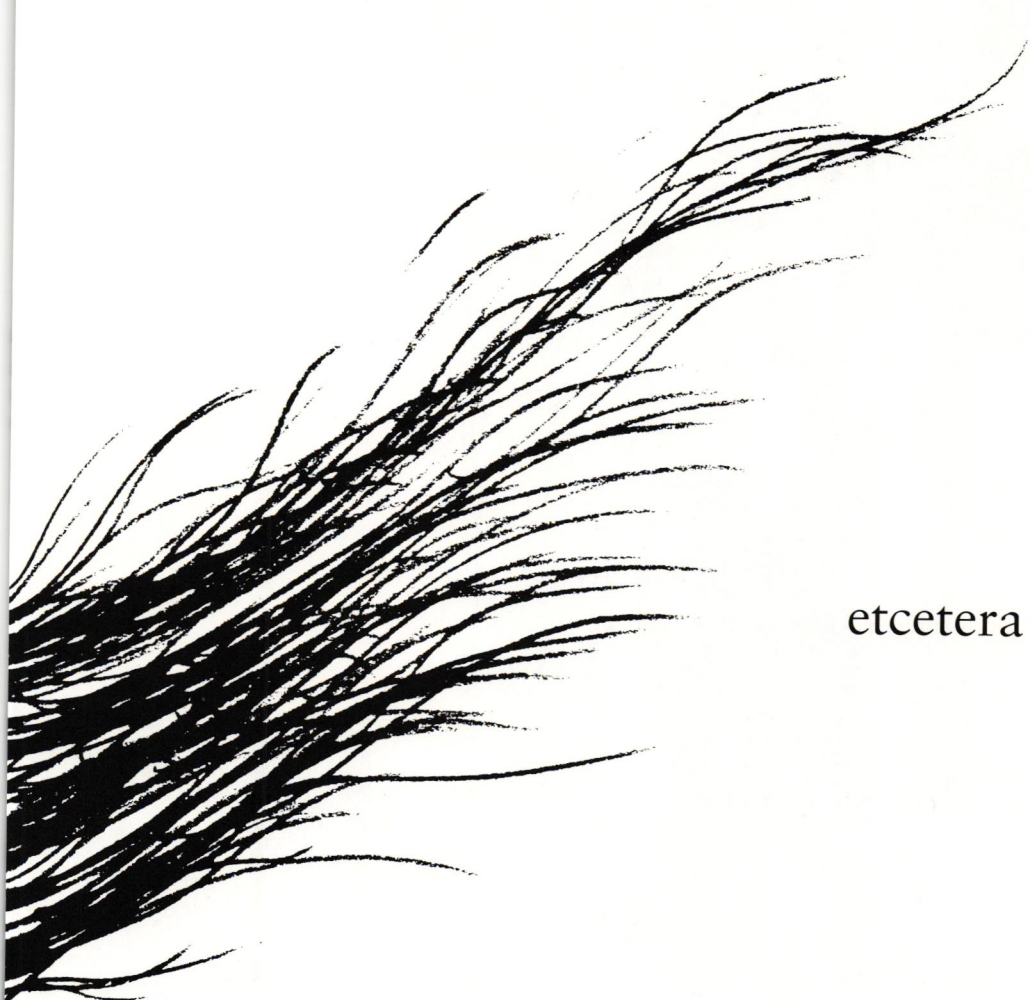
Now in the qualitative realm, if I fill my object with content, the more content, the more meaningful it becomes, the more it is transcendent. That is, I can take my object from my studio to, say, a gallery in New York or Europe, and nothing of any consequence really changes. This invested meaning, in the classical sense, in effect carries my object in the vacuum of its transcendent meaningfulness. In painting, by the act of framing, you in effect edit everything else out as meaningless.

This one image of content rises out of its surrounding milieu, and it does so because of its invested meaningfulness. And all those things around it become, by degrees, meaningless. That's what separates it from worldly phenomena.

Even to another culture, nothing is lost, since this meaning—this essence—everyone, of course, is able to understand. This essence is the same thing always, to all people, everywhere. It's a marvelous idea. And if you take that idea and push it all the way, you have the notion of art as *timeless*—which is a very pretty idea.

But if you look at the history of modern art, what you see is a history of art pouring this kind of meaning out of its objects and paintings. And once they had emptied it all the way down to the unadorned object, as object, then suddenly, this object—if you play the game for a moment—this object has no meaning, and you realize that without this abstract invested meaning, the object becomes purely *contextual*. Now when I move it from here to there, in each new case it enters into an entirely different realm. In this sense, each new circumstance constitutes a unique context. Here in the world of conditioned relations, each new set of terms requires a new response. There is, of course, an infinite number of potential responses.

It is in this sense that I have approached the project for the Getty gardens as a deeply contextually-bound set of circumstances. The architecture and the site, the various 'missions' of the Getty Trust, and the highly diverse populations who will use the site act—all these act together to create a context for the garden to become what it can be. In this particular case, the context becomes very demanding, and the garden resonates with that. For this garden will have a very special kind of audience—one with the collective ability to appreciate and engage in a long-term dialogue.

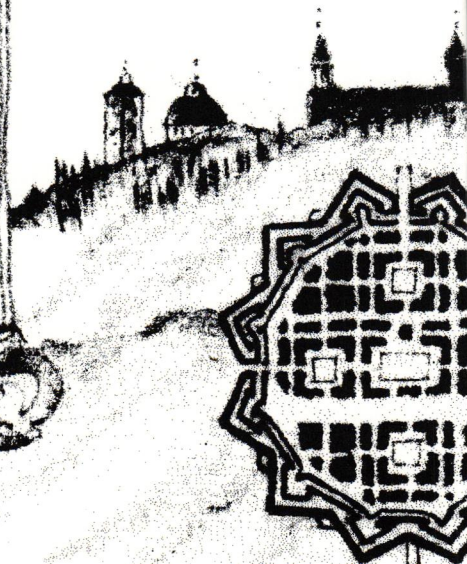


etcetera

Etcetera begins with "Angels in the Architecture," an excerpt from a longer work *Angels in the Architecture* which was drawn and written by Marvin J. Malecha as a letter to his daughter Michelle, 1993.

Angels in the Architecture

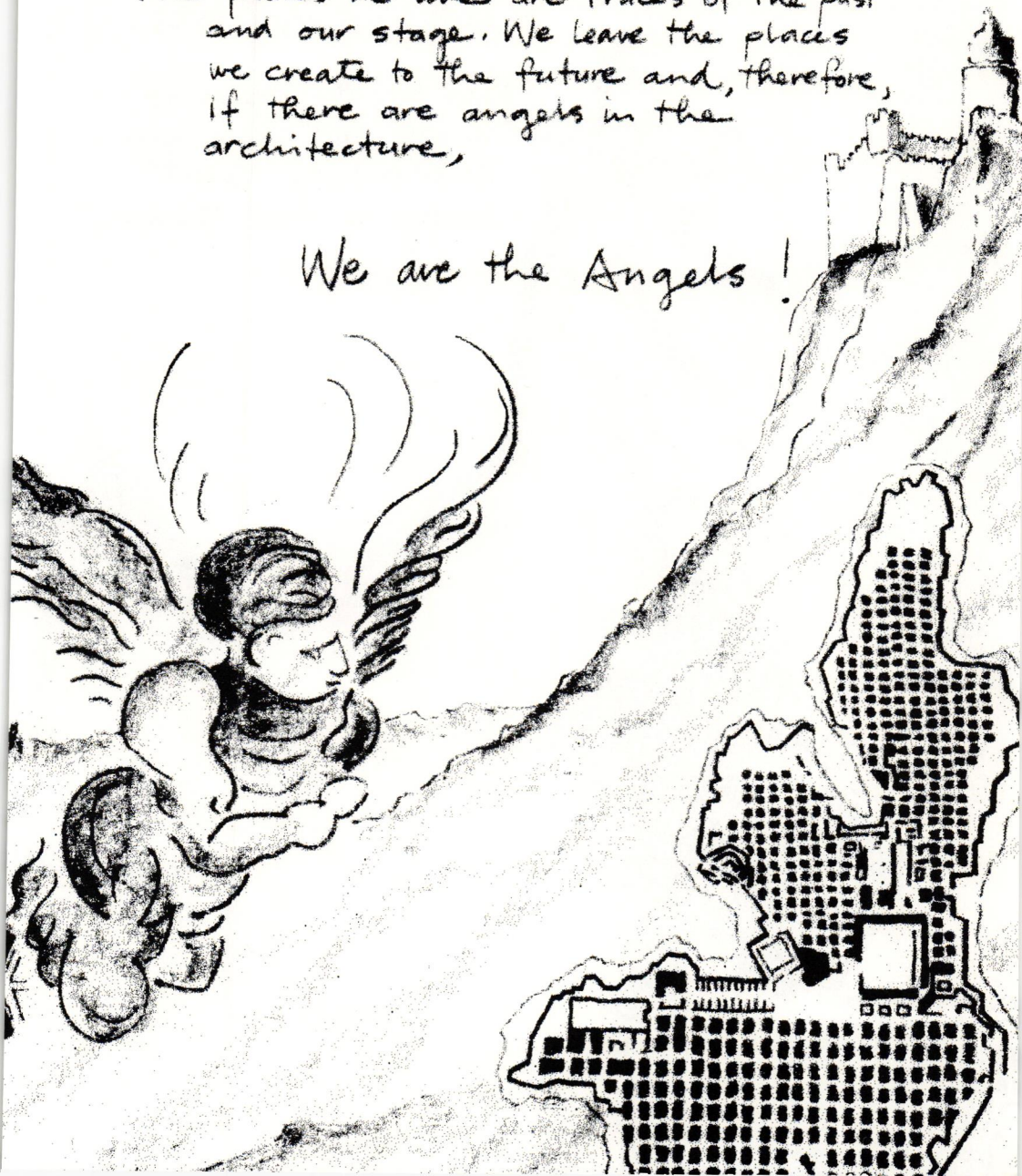
Matecha



These drawings and thoughts are about being alive. When we are curious we are angels. Living is a combination of sensations which become memorable experiences. Life is a search for peace along an ever changing path.

The places we live are traces of the past and our stage. We leave the places we create to the future and, therefore, if there are angels in the architecture,

We are the Angels !

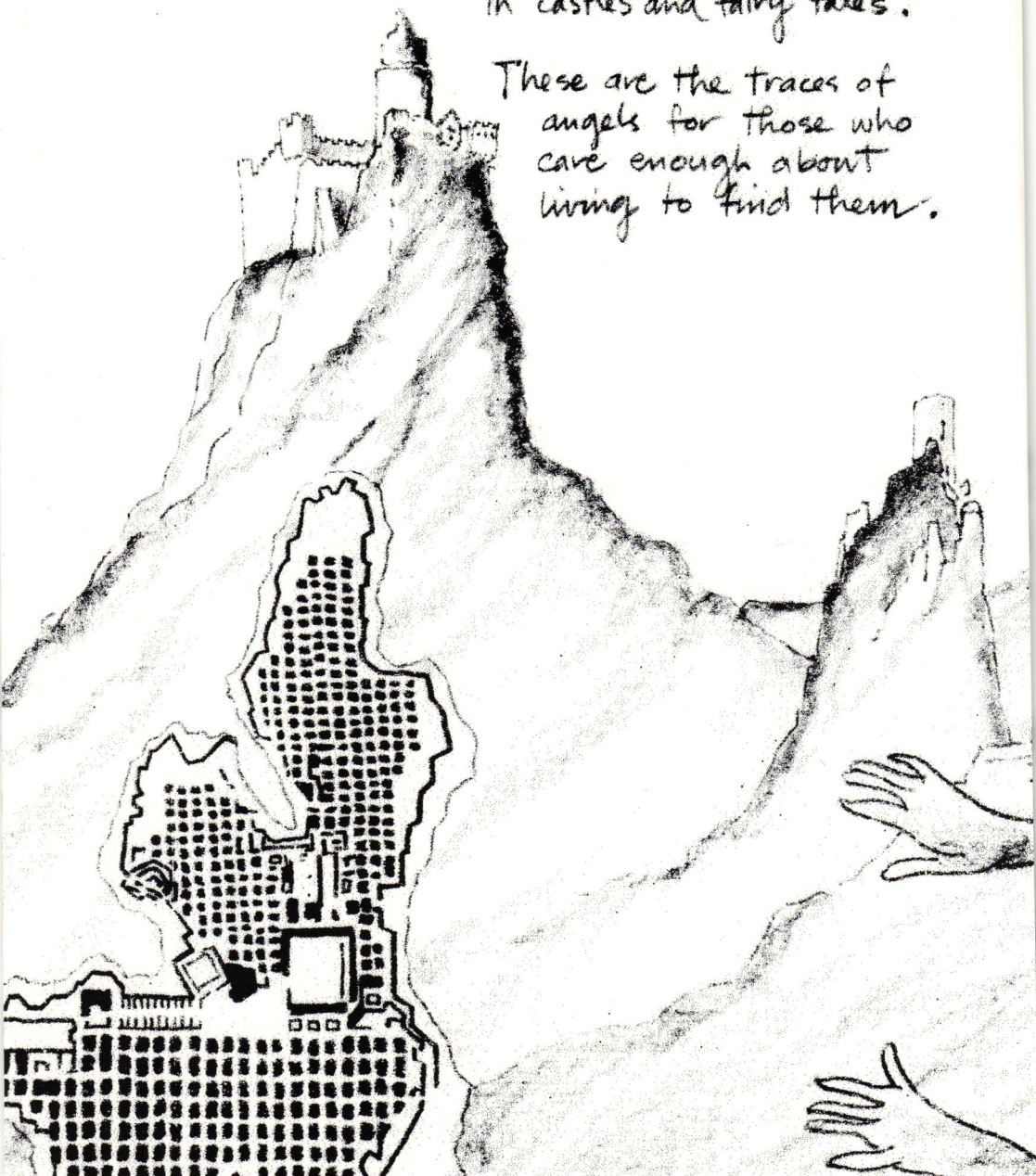


There is something special going on around us!

There are Angels about!

But, how do you find them, in a breath of air on the face, in an unusual fragrance, in a secret place along a path, or if you close your eyes and use your imagination in castles and fairy tales.

These are the traces of angels for those who care enough about living to find them.



A breath of air on your face is a gentle touch like a kiss before falling asleep. It is not the sensation before an open window, everyone would feel that, this is for you, only you.

Sometimes in a special place this happens over and over again. This mysterious friend is silent like the wind off a bird's wing.

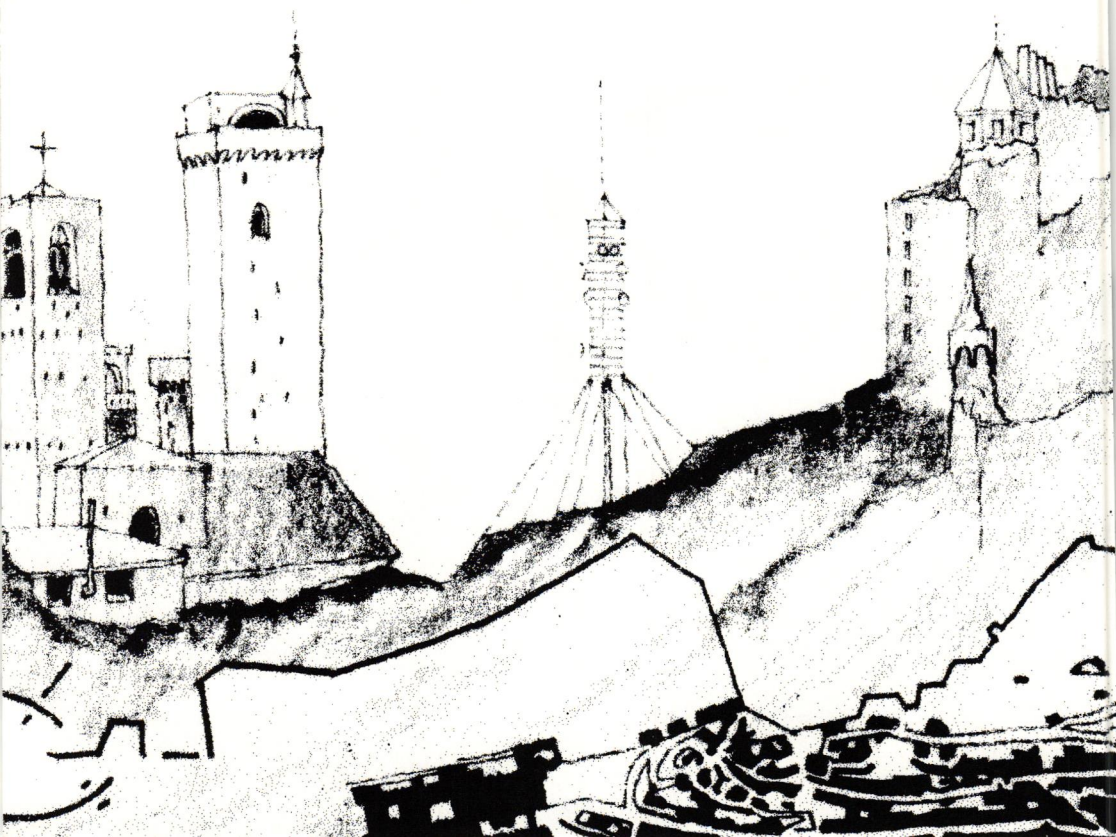
Is it an Angel's wing?



Close your eyes and imagine a beautiful castle with large and small rooms, with big open windows and small peep holes, with rooms washed with light and others so cold, dark and damp that you are afraid to go in them.

Imagine a climb to the highest tower so that you can almost feel like you are flying high above every place and everyone and you can see forever.

Imagine what the people of the castle would be like, not just the king and the Queen but all the people, the cooks and the maids and the soldiers.

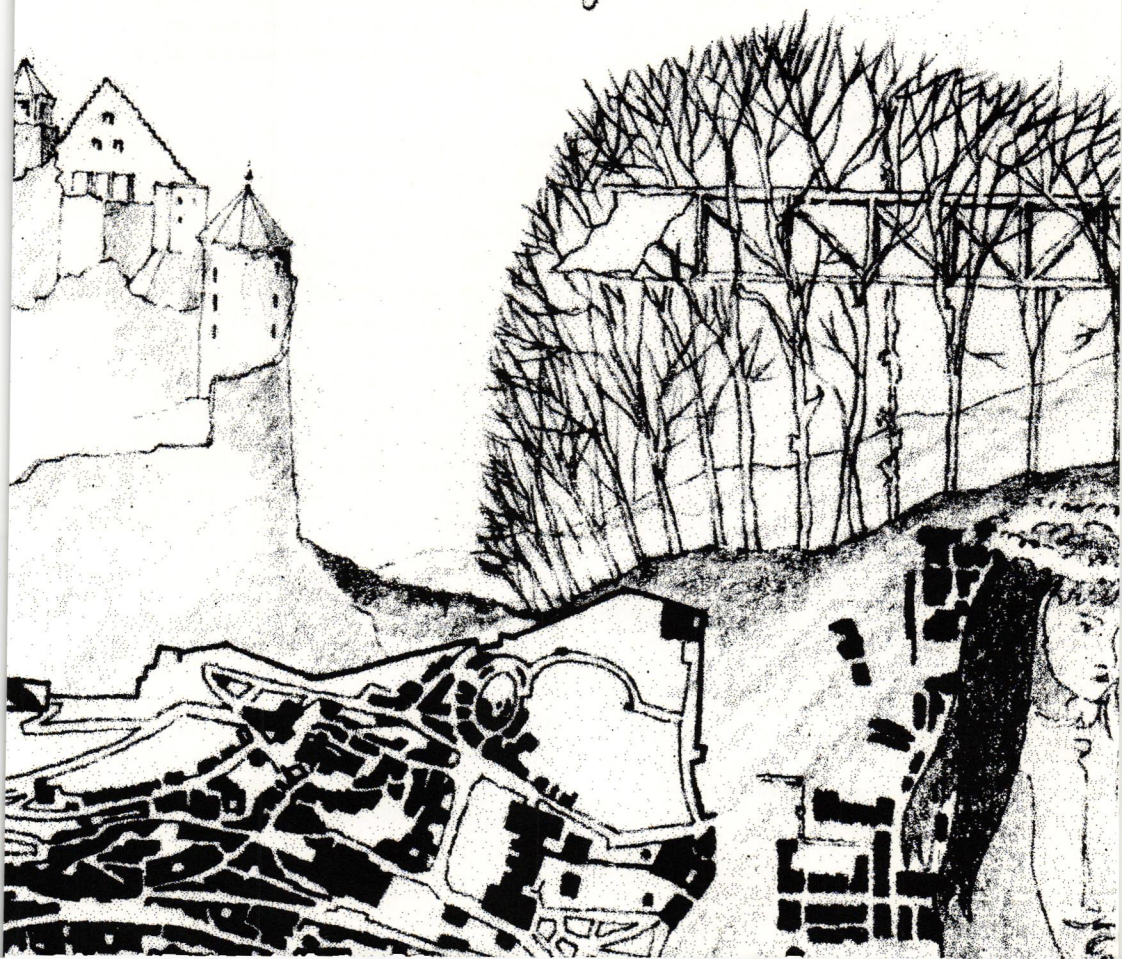


Now imagine the castle with all the people gone. It stands alone with no one to take care of it. Maybe it is already in ruins with only the memory of past beauty. It feels like a place to find ghosts. Close your eyes and you will hear the sounds of the past.

Have you ever stepped into a room and tried to imagine what has happened there before?

The traces of people are everywhere, or are these the

traces of Angels?



Keeping History Whole: Converting the Presidio of San Francisco

Nora Klebow, AIA
AIA/SF Presidio Task Force
*Architects, Designers, and Planners for
Social Responsibility, Northern California*

In a report dated December 1993, AIA San Francisco endorsed in concept Alternative A of the *Draft Environmental Impact Statement of the Golden Gate National Recreation Area's (GGNRA) Draft Plan for the Presidio of San Francisco* ("Draft Plan"), while pointing out the need for the Draft Plan to reconsider key planning elements.

The AIA San Francisco report, titled *A Response to the GGNRA Draft Management Plan Amendment for the Presidio of San Francisco* ("Response"), was produced by AIA/SF Presidio Task Force in cooperation with Architects, Designers and Planners for Social Responsibility (ADPSR), Northern California Chapter. Key findings of the AIA/SF Response include:

IMPLEMENTATION STRATEGY

The Public Benefit Corporation proposed by the National Park Service (NPS) is vital to the success of the Presidio conversion as it has the potential to be a highly effective vehicle to execute private sector leasing and financing and secure income streams from anchor tenants. Congressional legislation to establish the corporation should be activated in the shortest possible time. However, AIA/SF recommends that an interim implementing group be established immediately and be given the authority to negotiate leases well in advance of Congressional action to create the Public Benefit Corporation.

KEEPING THE HISTORIC BOUNDARIES INTACT

AIA/SF maintains that the Presidio's historic boundaries must be maintained, and that the lands known as the Public Health Service Hospital be included in the Park's boundaries. Subdivision of the land currently included in the boundaries of the Presidio would have a severe negative impact on the Historic Landmark District and deprive the National Park Service of substantial revenues necessary for the operation of the park.

HISTORIC PRESERVATION

The National Park Service has recommended keeping and rehabilitating virtually all historic structures at the Presidio, which the Response deems a costly and unnecessarily strict policy that will have a severe impact on capital improvement and operating budgets in the years to come. Retention of all historic structures may impose an unreasonable requirement for reuse of buildings without sufficient significance in lieu of more appropriate new structures better suited to the park's new activities. A better decision-making and planning tool is needed that takes into consideration the relative importance, historic integrity, and contributions to the historic district.

RECONSTRUCTING DOYLE DRIVE

Doyle Drive planning and reconstruction is critical to the future of the Presidio and the Bay Area. Visionary

studies done by landscape architect Michael Painter, and endorsed by the Doyle Drive Task Force, should be considered the guiding concepts in planning for the future of the roadway and the Presidio's new main entrance.

DEFINING PARK USES

Two separate park uses are outlined in the plan: one, a "sustainable community contributing to the solution of global challenges" and, two, a "traditional park providing education, recreation and a natural retreat for the urban area." Rather than distinguish between these two uses, the park should be considered as a whole and means should be found of physically connecting those areas.

PALACE OF FINE ARTS

The Palace of Fine Arts is an extraordinary structure and its importance to the Presidio cannot be overstated. Yet neither it nor the Exploratorium—a natural, potential "Park Partner"—are adequately addressed in the Draft Plan (presumably because they lie outside the current boundaries of the Park). Their proximity to the Park, in particular the Letterman Complex and a rebuilt Doyle Drive, requires careful and generous consideration.

CRISSY FIELD

This area has the potential to be one of the greatest meetings of land and water in the world, yet the Draft Plan assigns overflow and large event parking for Crissy Field. AIA/SF urges that Crissy Field be returned to its natural state for active recreational use and open space, and suggests that the eastern edge of the park be configured for large event parking and connecting shuttle service.

HOUSING

The Draft Plan calls for accommodating 38 percent of park employees and park partner program participants within the



Carl A. Wilmington

Presidio's boundaries. AIA/SF urges that the National Park Service make a good faith effort to meet the city of San Francisco's goals of housing 50 percent of the Park's housing demand to avoid straining the already limited housing supply in the city.

SUSTAINABLE DESIGN

Even more provisions for sustainable design should be given as a project goal, with specific, quantifiable standards guiding all tenants in their remodeling efforts. Natural, renewable, indigenous, sustainable, nontoxic, recycled or recyclable building materials should be strongly encouraged or required in RFPs; use of toxins should be avoided; and sharing and pooling resources should be encouraged.

TRANSIT

New and improved transit options will be necessary to relieve the stress caused by the increased number of park visitors. AIA/SF recommends developing a transit plan that serves tenants, residents, and visitors, and includes provisions for the extension of the MUNI F-line along the waterfront and Marina Boulevard and permanent extensions of other lines currently serving the Presidio.

Water Story

Stephen Callis

After traveling about a league and a half through a pass between low hills, we entered a very spacious valley, well grown with cottonwoods and alders, among which ran a beautiful river....Toward the north-northeast there is another river bed which forms a spacious water-course, but we found it dry. This bed unites with that of the river, giving a clear indication of great floods in the rainy season.... We halted not very far from the river, which we named Porciúncula.

Juan Crespi

Portolá expedition, 1769

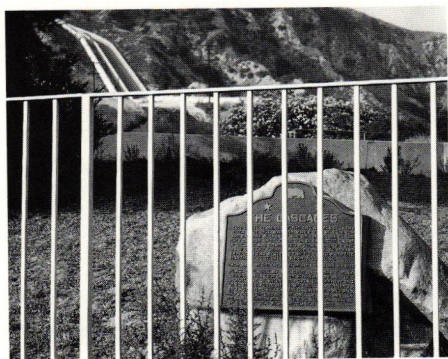
How can the L.A. River be read? What can be made of the concrete canyon that runs through Los Angeles?

As water stories go, the story of the Los Angeles River is a pretty dry one. At least most of the time. However, like most rivers, the L.A. River is prone to occasional flooding. Unlike most, the L.A. River at peak flood can carry as much as a thousand times more water than normally flows during the dry

season. Consequently, the design of the river is a response to these demands, albeit within the narrow confines of the economics and politics of land development in Los Angeles. This relationship between flood control and land use has had, and continues to have, a profound effect on how the city and the river coexist.

If nothing else, the history of Los Angeles is a study in economic growth. Water was brought here to ensure continued growth, first to make a semi-desert into productive farm land, then for a thirsty and growing city. Whereas the importation of water has been a necessary ingredient in this growth process, the control of flood waters has seldom been regarded as a significant factor. In fact, flood control has been crucial to protecting already developed property and to allowing the real estate industry to flourish. Like many infrastructural improvements, flood control is too big a job to be left to private enterprise. After all, public safety is at stake. In 1914, following severe flooding and just one year after the city had secured an outside water supply (the L.A. River had been the city's primary source of water until the L.A. Aqueduct was completed in 1913), the County passed its first flood control act. In the 1930s the federal government, through the Army Corps of Engineers, helped ensure that the relationship between flood control and private real estate flourished, in effect amounting to an incentive and subsidy for tremendous growth.

If the landscape can be viewed as a reflection of the economic model on



Terminus of the Los Angeles Aqueduct.

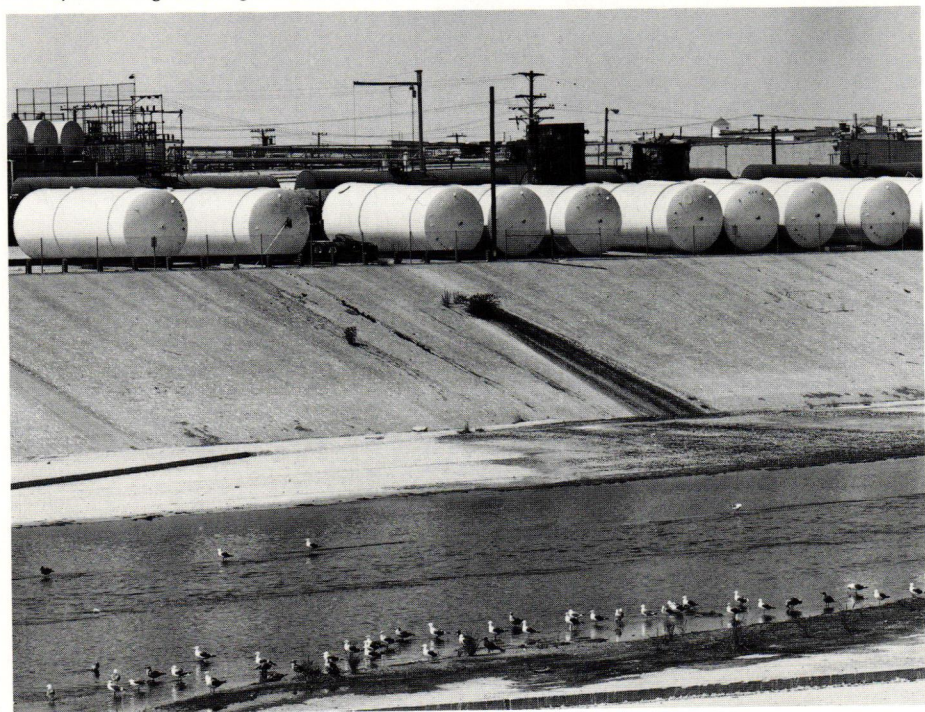


Above, Spring Street Bridge. Below, from natural to lined channel, Dayton Creek.





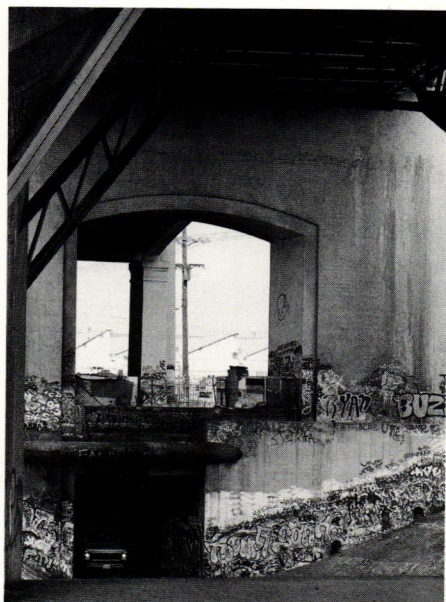
Above, fountain grass along the banks of the Rio de Porciúncula. Below, gulls in Vernon.



which our society has based itself, then what the L.A. River looks like is as much a result of the priorities of growth and real estate over habitat as it is a result of functionalist design. It would be interesting to imagine what the city and the river might have looked like if our priorities had been reversed.

The irony of flood control is that it allows more development. More development means worse floods because paved land doesn't absorb water as unpaved, vegetated land will. The L.A. River was designed in 1939 and built through the 1940s to handle a 100 year flood. Now, in some areas due to increased run off, the river can barely handle a 25 year event.

If the L.A. River is the backbone of the city's flood control system, storm drains are the rest of the skeleton. Situated underground, storm drains usually



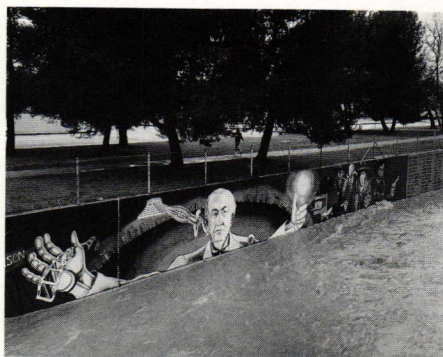
Flood control provides many real estate opportunities.



Above, Glendale Blvd. lies at the bottom of a natural flood plain. Below, underneath lies Storm Drain #59.



Above, Glendale Narrows. Below, Edison and 'the control of nature'.





Hansen Dam Golf Course.

run parallel or underneath natural waterways, allowing development in what was once a natural flood plain.

When an area is set aside for flood control, future development is limited to minimize property damage in the event of a flood. Consequently, flood control areas naturally provide ideal settings for many types of recreation. However, the sanctioned recreational development, on the whole, is not re-



Where the Old West meet the new.

sponsive to the needs of working class and urban youth.

Los Angeles County is responsible for maintenance of flood control dams and debris basins. The politics of austerity are realized in many different ways. Money is scarce, and, ironically, as the number of jobs and recreational opportunities decrease, youth caught in the criminal justice system are used as cheap labor to clear the flood path.



Juvenile offenders clearing brush, Nichols Canyon Debris Basin.



Water treatment tanks.

At the Donald C. Tillman water reclamation (sewage treatment) plant in Van Nuys, the distinction between nature and artifice becomes muddled. Water originating in the Owens Valley travels by aqueduct to the San Fernando Valley where sewage water is flushed, reclaimed, used to fertilize and water a Japanese garden, and unceremoniously dumped into the L.A. River.



Waterfall in a semi-desert.

Los Angeles, having sold itself on the beauty of its physical attributes, has done little to preserve them. In the 225 years between the Portolá expedition and the present lies a history of the river, not exactly a road paved with gold, but a river paved with concrete.

It's an ugly system, but it works.

Jon Sweeten
Army Corps of Engineers, 1990



Mouth of the Los Angeles River, Long Beach.

Letters

Dear AIA, California Council,

On behalf of the Director of the Governor's Office of Emergency Services and myself I wish to express my sincere gratitude to you and all of your members who assisted in the safety assessment process for the Northridge Earthquake. Your professionalism, dedication, and patience were greatly appreciated by all.

This was the event that the plan was written for, and when the chips were down all five organizations [Structural Engineers Association of California (SEAOC), American Society of Civil Engineers (ASCE), American Institute of Architects (AIA), American Construction Inspectors Association (ACIA), and California Building Officials (CALBO)] responded rapidly to fill the requests. Early in the response it became apparent that we would not be able to call on the organizations for all the resources needed. It was at this time that we called upon the U.S. Army Corps of Engineers. They also responded in a timely fashion with 180 engineers. We processed through the Oak Grove Base Camp approximately 500 volunteers from the five organizations plus 180 from the Corps. A very successful response....In the two weeks after the earthquake, a total of 58,361 inspections have been performed.

Again, thank you for your timely response, and because of your efforts, we have a program second to none in the country. The program works and will continue to work when the need arises.

Richard A. Ranous
Post-Disaster Safety Assessment
Coordinator
Governor's Office of Emergency Services

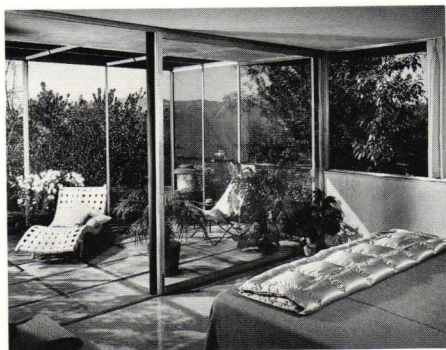
Dear Editor,

I am writing to respect the far-sighted vision of my architect, Raphael Soriano. He died a few years ago, leaving a heritage of homes designed using steel framing. My house, a Cultural Heritage Monument, has experienced all the earthquakes during our 44 years of occupancy and has not suffered even the minutest crack, never even lost a single plate. The house is composed of a steel frame and large glass walls, some extending 30 feet by a 10 foot height!

I attribute the above stability to the steel framing of the structure. For those who are hoping to reconstruct destroyed or badly damaged homes, I would like to suggest the consideration of steel framing. In addition to its security, the framing can be constructed in a fraction of the time required for an orthodox wood structure.

Soriano spent a life time in dedication to the principles of sound construction; they are now worthy of renewed consideration! With hopes for a secure future for those helpless victims of Nature's violence. We are all involved.

Julius Shulman
Los Angeles



Raphael Soriano, architect. Photo, Julius Shulman.



Dear Editor,

As the great Yogi Berra said, "It's Deja-vu, all over again." The enclosed cartoon ran in the *Long Beach Press Telegram* in 1933.

Manny Perez, AIA
Long Beach

Dear Editor,

I read in the November 1993 issue Barton Anderson's article on the nature of inquiry in the design of commercial architecture with mounting irritation and frustration. Though tempered with some doubt in his conclusion, he seems to suggest that architects could and should be a part of selling the merchants goods. Does he believe that the Price Club could gain something from better design? The retail scene in America shows that many beautifully designed shopping places are retail failures and even more poorly designed shopping areas are enormous successes. Architecture can hurt, but it can't rescue the merchant. Mr. Anderson might ask himself exactly what roles are played in retail design by the architect, the leasing agent, the owner, and the retail salesperson. The architect cannot possibly be the orchestrator of what they all do or how they do it, and each has a role to play.

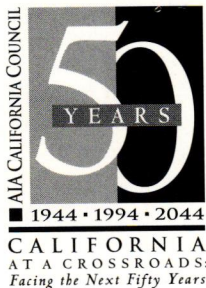
Further, it should be self evident that no innovative retailer can stand still in their success or they will be copied and less competitive. If the modern retailer must keep changing, architecture, which is relatively permanent, would seem a poor vehicle for effecting constant change. Certainly architecture can provide a better background for the retailer to change within. However, it is the shopping experience that the shopper registers and remembers, and if it is pleasurable they come back.

Mr. Anderson made much of the methods of modifying the consumers' behavior, as if our design could make a \$1000.00 suit seem less extravagant and more necessary or increase our need of a coffee break. The best we can do is make a nice place for the coffee stop and give the merchant a prominent place to display the suit. However, the leasing agent can discourage the coffee store next to an incense candle shop whose aromas kill the appeal of coffee.

There is an area where architects can affect shoppers' behavior that has nothing to do with "what the shopper wants." This is a subtle tempting and urging the shopper into visiting as much of a retail complex as possible on each visit. Rather than relating this to Pavlov's experiments, it is done by taking advantage of normal human responses to certain stimuli. Vistas to something distant attract. All animals move instinctively from darker areas toward light.

The studies of William Whyte and my own film and video observations bear out the human behavioral responses to places architects create. If we observe our own work, we can see how people move. The design of commercial places requires a highly collaborative effort, and we can leave the buying and selling part to the retailers.

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